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MOISTURE-TENSION DATA FOR SELECTED SOILS ON EXPERIMENTAL WATERSHEDS

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Moisture-Tension Data for Selected Soils on Experimental Watersheds[1]

H. N. Holtan, C. B. England, G. P. Lawless, and G. A. Schumaker [2]

INTRODUCTION

The moisture retention and conductivity data presented in this publication are part of an effort to determine the influence of soils upon the hydrologic performance of agricultural watersheds. Soils were sampled to represent approximately 200 Agricultural Research Service (ARS) experimental watersheds or plots at 34 locations in 23 States. Watersheds or plots were selected for length of hydrologic record and for least complexity of soils and land use. Sampling and testing were designed specifically to provide a basis for computing watershed capacities for rainfall retention and may not strictly adhere to the methods used by the Soil Conservation Service (SCS) for soil classification. The data are released here as an inducement toward deterministic hydrology in watershed engineering and not as a study of soil genesis.

SITE SELECTION

Locations of watersheds sampled are indicated on the map on figure 1. Numbers refer to the location code used by ARS in releases of hydrologic data from experimental watersheds.[3]

Where information was available at the time of sampling, soil series names and watersheds represented by each series were recorded in the tables on pages vi to xi. Subsequent correlations by the SCS Soil Survey have resulted in some name changes.

At each location, sites were selected by the local SCS soil scientist in collaboration with ARS and State experiment station personnel of the local project to represent a given soil as it occurred on the experimental plot or watershed. Sites were generally outside of the watershed or plot, since the sampling process was destructive of the soil profile. Most of the soils sampled have a wide range of depths over the watershed, particularly in the "A" horizon. Consequently, adjustments in horizon thicknesses may be necessary where used with a soils map of a particular watershed or plot.

Sites were selected to sample in duplicate distinctions in land use history within each soil as they occurred within the plot or watershed. Categories of 15- to 20-year histories were (1) pasture, (2) cultivated, (3) woods, and (4) idle.

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[1] Soil and Water Conservation Research Division, Agricultural Research Service, U.S. Department of Agriculture.

[2] Research hydraulic engineer and Director and soil scientist, Hydrograph Laboratory, Beltsville, Md., and soil scientists on detail from Tucson, Ariz., and Grand Junction, Colo., respectively.

[3] Hobbs, Harold W., and Crammatte, Florence B., comp. Hydrologic Data for Experimental Watersheds in the United States, 1960-61. U.S. Dept. Agr. Misc. Pub. 994, pp. 1965.

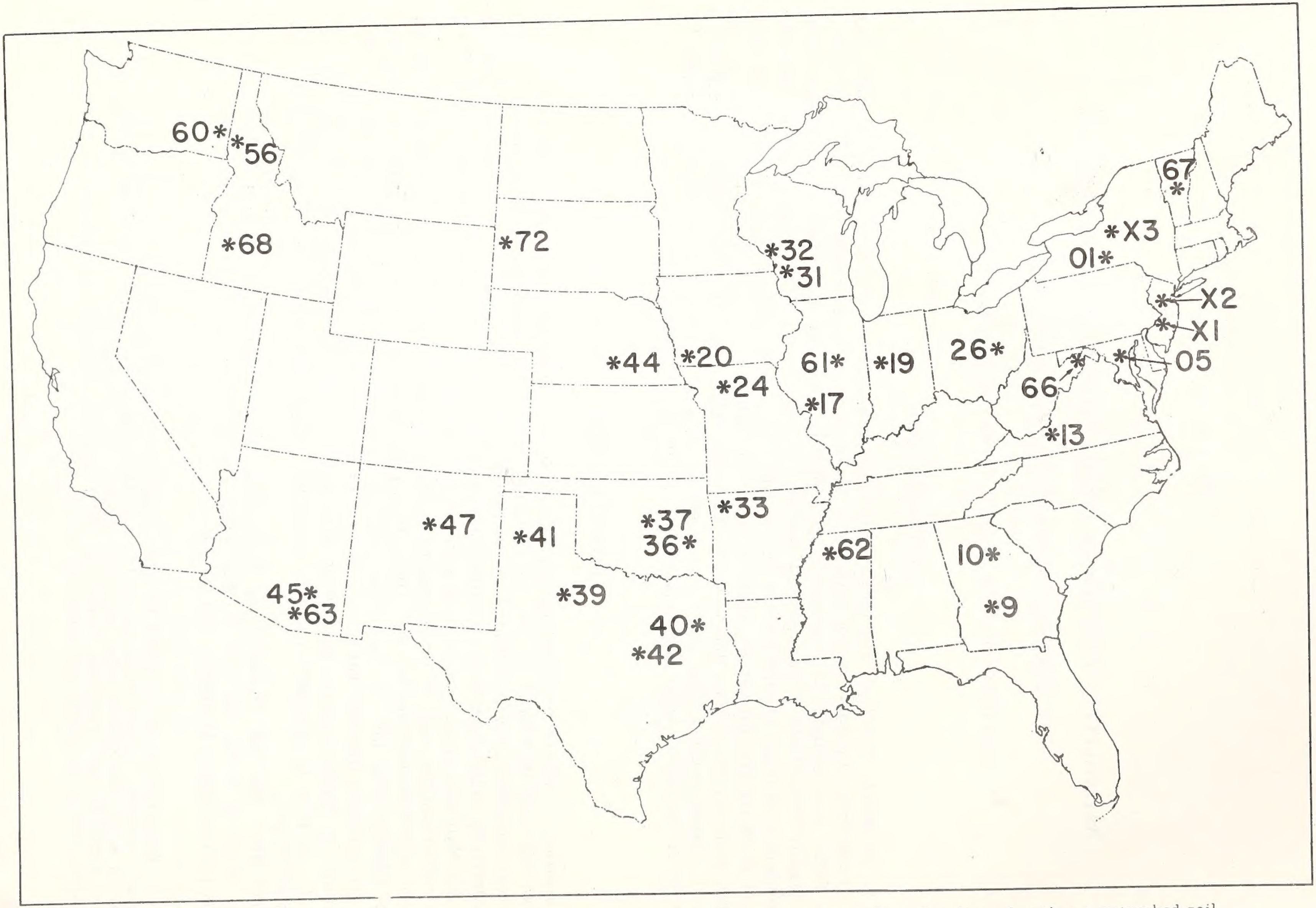
60*
*56
*68
*72
*32
*31
*X3
01*
67
*
*X2
*X1
*05
66
*13
26*
*19
61*
*17
*44
*20
*24
*33
*47
*41
*37
36*
*62
10*
*9
45*
*63
*39
40*
*42

Figure 1.--Map showing location code number of soils sampled. Prefix "X" indicates sampling of a plot rather than a watershed soil.

SAMPLING

Soil scientists Lawless and Schumaker spent several weeks during November 1964 assembling equipment and learning sampling techniques through instruction from the SCS Soil Survey Investigations Laboratory at Beltsville, Md. Equipped with handtools, materials for sampling, and a powered backhoe, Schumaker sampled the western sites and Lawless the eastern sites with assistance from local scientists of SCS, ARS, and State agricultural experiment stations at each location. Sampling was mainly completed by the end of July 1965.

Pits were dug in the form of a "T" oriented to permit sunlight on the exposed profile. The top of the T was about 8 feet long, 5 feet deep, and 2 feet wide, but the leg of the T was dug as a sloping ramp for easy access.

The local SCS soil scientist described the profile in accordance with the Soil Survey Manual[4] and its 1962 supplement and marked each horizon for sampling by inserting tenpenny nails into the profile. Two bags of loose material were obtained from each exposed horizon in all soils sampled. Ten soil fragments, roughly cylindrical and 3 by 5 inches or smaller, were removed from each horizon in cohesive soils. Great care was taken to avoid fracture or compaction. In noncohesive soils, 10 core samples 1.8 inches long by 1.5 inches in diameter were obtained, or when this proved impractical, an additional bag of loose sample was taken.

Soil fragments were dipped in a solution of resin dissolved in methyl ethyl ketone as described by Brasher and others[5], bagged in plastic, and placed in 1-quart ice cream cartons for shipment. All samples were either wrapped or bagged tightly in plastic for shipment to the laboratory: one bag and eight fragments or cores were sent to the University of Georgia for bulk density and moisture retention testing, and one bag and two fragments or cores (marked for vertical orientation) were sent to the USDA Hydrograph Laboratory, Beltsville, Md., for tests of saturated hydraulic conductivities. Field sampling, shipments, and laboratory disposal of soil materials were in strict conformance with regulations prescribed by Regulatory Operations, Plant Pest Control Division, ARS, Hyattsville, Md.

LABORATORY TESTING

Moisture retention determinations were done under contract by the Agronomy Department of the University of Georgia[6]. Desorption data were obtained with the techniques for pressure plate and membrane apparatus (p. 109) described by Richards and others[7]. Moisture retentions were determined in equilibrium at five pressures: 0.1, 0.3, and 0.6 bar, with a ceramic plate, and 3.0 and 15 bars, with a membrane.

Since interest in this study centered on specific profiles representing specific watersheds, samples were neither crushed nor sieved. However, duplicate samples were crushed and sieved through 2.0-mm. screen for correlation at the 15-bar pressure, and the duplicate fist-sized fragments were desorbed at 0.3-bar pressures for correlation of loose samples results with results from the standard techniques of the SCS Soil Survey Investigations Laboratories, as published in the Soil Survey Investigaion Reports.[8] Approximately 1,000 samples were rerun at the 15-bar tension by W. A. Jackson of the ARS Southern Piedmont Conservation Research Center at Watkinsville, Ga., as an independent check.

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[4] Soil Conservation Service. Soil Survey Manual. U.S. Dept. Agr. Handb. 18, 503 pp. 1951 (and 1962 supplement).

[5] Brasher, B. R., Franzmeier, D. P., Valassis, V., and Davidson, S. E. Use of Saran Resin to Coat Natural Soil Clods for Bulk Density and Water-Retention Measurements. Soil Sci. 101: 108. 1966.

[6] Laboratory work was performed under the direction of Dr. Robert A. McCreery, asst. professor.

[7] Richards, L.A. and others. Saline and Alkali Soils. U.S. Dept. Agr. Handb. 60, 160 pp. 1954.

[8] Soil Conservation Service. Soil Survey Laboratory Data and Descriptions for Some Soils of Iowa. U.S. Dept. Agr., Soil Conserv. Serv. SSIR 3, 181 pp. 1966.

When results did not agree closely and a question of selection arose, both values were included in this publication.

At 15-bar tension, moisture content of the crushed and sieved sample was highly correlated with that of the loose-aggregate sample:

$$\hat{y} = 1.385 + 0.891x$$
$$r = 0.882;\ n = 1{,}800$$

At the 0.3-bar tension, moisture content of the fist-sized fragment was highly correlated with that of the loose-aggregate sample:

$$\hat{y} = 1.372 + 0.934x$$
$$r = 0.943;\ n = 1{,}800$$

Bulk densities were determined by liquid displacement techniques[9] at 0.3-bar tension moisture and again after ovendrying using a saran-coated, fist-sized fragment, or core volumes, for the moisture condition pertaining at the time of sampling in the field. For those soils or conditions where fragments or cores could not be obtained, loose samples were laboratory-packed by a standard number of bumps in a wet condition for bulk density approximations.

Saturated vertical hydraulic conductivities were determined in the USDA Hydrograph Laboratory at Beltsville, Md.,[10] on the two fist-sized fragments sent in by each field crew for more cohesive soils. Soil fragments were trimmed roughly to cylindrical shape, and a 1-inch slice was mounted with watertight mastic in a 1-inch ring of 3-inch diameter. Mounted slices were subjected in duplicate to a constant head of water after overnight saturation, to determine the hydraulic conductivity for each soil horizon sampled. Results from field sample cores and laboratory-packed cores proved so erratic that conductivity tests were abandoned for all horizons not sampled by soil fragments.

INDEX OF SOILS STUDIED

The following tables are a complete index to the data presented in the section on "Moisture-Tension Data and Soil Descriptions. Table 1 lists soil types alphabetically and table 2 lists soil types by State and watershed location.

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[9] Johnston, J. R. An Accurate Method for Determining Volume of Soil Clods. Soil Sci. 59: 449-452. 1945.

[10] Laboratory work performed by Henrietta Pritchard under the direction of Charles B. England, soil scientist.

Table 1. Index of soils, identification numbers, and locations

Soil name	Identification	Location	Page
Abilene clay loam	39-01	Spur, Tex.	286
Albion loam	37-01	Stillwater, Okla.	266
Alexis silt loam	61-01	Monticello, Ill.	438
Appling coarse sandy loam	13-23	Blacksburg, Va.	84
Appling fine sandy loam	13-20	Blacksburg, Va.	78
Austin silty clay	42-01	Riesel, Tex.	324
Bascom-like clay	72-03	Newell, S. Dak.	572
Bath channery silt loam	01-01	Arnot Forest, N.Y.	2
Baxter gravelly silt loam	33-01	Bentonville, Ark.	244
Baxter stony silt loam	33-02	Bentonville, Ark.	246
Beltsville silt loam	05-03	College Park, Md.	8
Berks loam	26-06	Coshocton, Ohio	226
Berwyn silt loam	05-04	College Park, Md.	12
Billings clay loam	47-08	Albuquerque, N. Mex.	418
Billings silt loam	47-01	Albuquerque, N. Mex.	402
Boswell fine sandy loam	40-01	Tyler, Tex.	294
Bowie fine sandy loam	40-02	Tyler, Tex.	298
Brandywine loam	13-19	Blacksburg, Va.	76
Bub gravelly sandy loam	40-03	Tyler, Tex.	306
Buckland silt loam	67-10	Danville, Vt.	552
Buckland loam	67-10	Danville, Vt.	554
Buckland very stony silt loam	67-10	Danville, Vt.	550
Burleson clay	42-08	Riesel, Tex.	336
Cabot silt loam	67-01	Danville, Vt.	540
Cabot very stony silt loam	67-01	Danville, Vt.	538
Cahaba fine sandy clay loam	62-05	Oxford, Miss.	506
Calais silt loam	67-03	Danville, Vt.	546
Calais loam	67-03	Danville, Vt.	544
Canoncito clay loam	47-03	Albuquerque, N. Mex.	406
Catlett silt loam	13-32	Blacksburg, Va.	130
Cecil sandy clay loam	10-01	Watkinsville, Ga.	48
Cecil fine sandy loam	13-21	Blacksburg, Va.	80
Cecil gritty sandy loam	13-24	Blacksburg, Va.	92
Cecil gravelly fine sandy loam	13-27	Blacksburg, Va.	104
Celina silt loam	19-05	Lafayette, Ind.	156
Chacra sandy clay loam	47-02	Albuquerque, N. Mex.	404
Chalmers silty clay loam	19-03	Lafayette, Ind.	144
Chester loam	13-17	Blacksburg, Va.	72
Chillum gravelly loam	05-05	College Park, Md.	14
Clarksburg silt loam	66-01	Moorefield, W. Va.	532
Colby silt loam	44-01	Hastings, Nebr.	342
Collinsville loam	36-02	Muskogee, Okla.	260
Colo silty clay loam	20-03	Clarinda, Iowa	180
Colrain fine sandy loam	67-05	Danville, Vt.	548
Continental gravelly sandy loam	45-07	Safford, Ariz.	394
Crockett clay loam	42-02	Riesel, Tex.	326
Crockett fine sandy loam	42-03	Riesel, Tex.	328
Croton silt loam	13-33	Blacksburg, Va.	132
Dana silt loam	19-06	Lafayette, Ind.	160
Dekalb sandy loam	26-04	Coshocton, Ohio	214
Dennis silt loam	36-03	Muskogee, Okla.	262
Dickson silt loam	33-03	Bentonville, Ark.	248
Dodgeville silt loam	31-01	Fennimore, Wis.	230
Drummer silty clay loam	61-02	Monticello, Ill.	450
Dubuque silt loam	32-01	LaCrosse, Wis.	238
Edneyville fine sandy loam	13-16	Blacksburg, Va.	70
Elburn silt loam	61-03	Monticello, Ill.	454
Fayette silt loam	32-02	LaCrosse, Wis.	240
Fincastle silt loam	19-04	Lafayette, Ind.	148
Flasher fine sandy loam	72-09	Newell, S. Dak.	596
Fluvanna fine sandy loam	13-29	Blacksburg, Va.	112
Fredrick silt loam	13-04	Blacksburg, Va.	58
Freehold loamy sand	X2-01	Marlboro, N.J.	602
Garfield silt loam	60-02	Pullman, Wash.	426

Table 1. (Continued)

Soil name	Identification	Location	Page
Garfield silty clay loam	60-02	Pullman, Wash.	428
Gilpin silt loam	26-05	Coshocton, Ohio	222
Glenelg loam	13-18	Blacksburg, Va.	74
Grabe gravelly sandy loam	45-05	Safford, Ariz.	386
Greendale silt loam	13-05	Blacksburg, Va.	60
Greenville loam	09-02	Americus, Ga.	32
Greenville sandy loam	09-03	Americus, Ga.	34
Grenada silt loam	62-01	Oxford, Miss.	474
Groseclose silt loam	13-06	Blacksburg, Va.	62
Grundy silt loam	24-01	Bethany, Mo.	184
Hartsells loam	26-03	Coshocton, Ohio	206
Hastings silt loam	44-05	Hastings, Nebr.	346
Hobbs silt loam	44-08	Hastings, Nebr.	362
Holdrege silt loam	44-06	Hastings, Nebr.	354
Holdrege silty clay loam	44-06	Hastings, Nebr.	356
Honeoye silt loam	X3-01	Marcellus, N.Y.	608
Houston black clay	42-04	Riesel, Tex.	330
Houston clay	42-05	Riesel, Tex.	332
Hyattsville loam	05-09	College Park, Md.	18
Ipava silt loam	61-03	Monticello, Ill.	456
Iva silt loam	17-05	Edwardsville, Ill.	134
Judson silt loam	24-04	Bethany, Mo.	192
Judson silt loam	31-03	Fennimore, Wis.	232
Keene silt loam	26-01	Coshocton, Ohio	194
Kirkland silt loam	37-03	Stillwater, Okla.	272
Kirvin fine sandy loam	40-03	Tyler, Tex.	302
Larb-like silty clay loam	72-02	Newell, S. Dak.	568
Latham/Cavode silt loam	26-02	Coshocton, Ohio	202
Leonardtown silt loam	05-11	College Park, Md.	22
Lexington silt loam	62-04	Oxford, Miss.	498
Lismas clay	72-04	Newell, S. Dak.	576
Litz shaly silt loam	66-02	Moorefield, W. Va.	536
Litz silt loam	13-08	Blacksburg, Va.	66
Lloyd clay loam	13-26	Blacksburg, Va.	102
Lloyd loam	13-25	Blacksburg, Va.	100
Lodi loam	13-09	Blacksburg, Va.	68
Loring silt loam	62-02	Oxford, Miss.	482
Lucien very fine sandy loam	37-04	Stillwater, Okla.	274
Madison sandy loam	10-03	Watkinsville, Ga.	52
Mansker clay loam	41-01	Vega, Tex.	310
Mardin silt loam	01-04	Arnot Forest, N.Y.	4
Marlboro sandy loam	09-05	Americus, Ga.	38
Marshall silty clay loam	20-01	Clarinda, Iowa	176
Memphis silt loam	62-06	Oxford, Miss.	508
Morton loam	72-05	Newell, S. Dak.	580
Muren soils	17-06	Edwardsville, Ill.	138
Naff silt loam	60-06	Pullman, Wash.	434
Nason silt loam	13-30	Blacksburg, Va.	120
Nellis gravelly loam	X3-01	Marcellus, N.Y.	605
Newtonia silt loam	33-05	Bentonville, Ark.	252
Norge silt loam	37-06	Stillwater, Okla.	276
Nuckolls silty clay loam	44-09	Hastings, Nebr.	366
Orangeburg sandy loam	09-06	Americus, Ga.	42
Palouse silt loam	60-05	Pullman, Wash.	430
Parr silt loam	19-09	Lafayette, Ind.	168
Penn silt loam	13-31	Blacksburg, Va.	128
Persayo silty clay	47-04	Albuquerque, N. Mex.	408
Pierre clay	72-01	Newell, S. Dak.	564
Pinaleno very gravelly loam	45-01	Safford, Ariz.	372
Port silt loam	37-02	Stillwater, Okla.	270
Potter gravelly loam	41-02	Vega, Tex.	314
Progresso fine sandy loam	47-05	Albuquerque, N. Mex.	410
Providence silt loam	62-03	Oxford, Miss.	490
Pullman silty clay loam	41-03	Vega, Tex.	316
Raub silt loam	19-08	Lafayette, Ind.	164
Renfrow silt loam	37-07	Stillwater, Okla.	280
Renfrow silty clay loam	37-08	Stillwater, Okla.	282

Table 1. (Continued)

Soil name	Identification	Location	Page
Red Bay sandy loam	09-07	Americus, Ga.	44
Rhoades loam	72-07	Newell, S. Dak.	588
Rhoades fine sandy loam	72-07	Newell, S. Dak.	590
Rhoades Associate clay loam	72-08	Newell, S. Dak.	592
Rhoades Associate sandy clay loam	72-08	Newell, S. Dak.	594
Ruston loamy sand	09-08	Americus, Ga.	46
Sable silty clay loam	61-02	Monticello, Ill.	446
Sassafras sandy loam	05-13	College Park, Md.	26
Shelby loam	24-03	Bethany, Mo.	188
Talihina clay loam	36-01	Muskogee, Okla.	258
Taloka silt loam	36-04	Muskogee, Okla.	264
Tama silt loam	31-04	Fennimore, Wis.	234
Tatum silt loam	13-28	Blacksburg, Va.	108
Thatuna silt loam	56-05	Moscow, Idaho	422
Thorp silt loam	61-05	Monticello, Ill.	468
Tillman clay loam	39-02	Spur, Tex.	290
Travesilla-like fine sandy loam	47-09	Albuquerque, N. Mex.	420
Trinity clay	42-07	Riesel, Tex.	334
Troy gravelly loam	X1-01	Beemerville, N.J.	600
Vaucluse sandy loam	09-01	Americus, Ga.	28
Vebar fine sandy loam	72-06	Newell, S. Dak.	584
Vernon clay loam	37-09	Stillwater, Okla.	284
Virgil silt loam	61-04	Monticello, Ill.	462
Volusia silt loam	01-05	Arnot Forest, N.Y.	6
Wellston silt loam	26-05	Coshocton, Ohio	218
Wilkes fine sandy loam	13-22	Blacksburg, Va.	82
Wilson clay loam	42-09	Riesel, Tex.	340
Alluvium	09-04	Americus, Ga.	36
Unnamed "01" loam	45-01	Safford, Ariz.	370
Unnamed "02" gravelly sandy loam	45-02	Safford, Ariz.	374
Unnamed "03" gravelly sandy loam	45-03	Safford, Ariz.	378
Unnamed "08" very gr. sandy loam	45-04	Safford, Ariz.	382
Unnamed "09" gravelly sandy loam	45-05	Safford, Ariz.	388
Unnamed "10" gravelly sandy loam	45-06	Safford, Ariz.	390
Unnamed "12" sandy loam	45-08	Safford, Ariz.	398
Rough broken shale land	47-06	Albuquerque, N. Mex.	414
Rough land	47-07	Albuquerque, N. Mex.	416
Unnamed "03" very gravelly loam	63-03	Tombstone, Ariz.	516
Unnamed "04" very gravelly loam	63-04	Tombstone, Ariz.	520
Unnamed "05" very gravelly loam	63-05	Tombstone, Ariz.	524
Unnamed "06" stony sandy loam	63-06	Tombstone, Ariz.	528
Unnamed fine sandy loam	68-01	Boise, Idaho	556
Unnamed gravelly loam	68-02	Boise, Idaho	558
Unnamed gravelly loam	68-03	Boise, Idaho	560
Unnamed very gravelly loam	68-04	Boise, Idaho	562

Table 2. Soils by watershed and location

State	Loc. no.	Locality	No. w/s	Soil type	Watershed represented	Page
Ariz.	45	Safford	4	Unnamed 01 loam		370
				Pinaleno vgrl		372
				Unnamed 02 grsl		374
				Unnamed 03 grsl	W-I, II, IV, V	378
				Unnamed 07 grsl		380
				Unnamed 08 vgrsl		382
				Grabe grsl		386
				Unnamed 09 grsl		388
				Unnamed 10 grsl		390
				Continental grsl		394
				Unnamed 12 stsl		398
	63	Tombstone	5	Unnamed 03 vgrl	Walnut Gulch Experimental Watershed	516
				Unnamed 04 vgrl		520
				" " vgrsl		522
				Unnamed 05 vgrl		524
				Unnamed 06 stsl		528
Ark.	33*	Bentonville	6	Baxter grsil	W-II, W-3	244
				Baxter stsil	W-IV, W-3	246
				Dickson sil	W-I, W-V, W-3, W-6	248
				Newtonia sil	W-I	252
Ga.	9*	Americus	4	Vaucluse sl	W-I	28
				Greenville l	W-IV	32
				Greenville sl	W-IV	34
				Alluvium	W-I	36
				Marlboro sl	W-II	38
				Orangeburg sl	W-III	42
				Red Bay sl	W-IV	44
				Ruston ls	W-III	46
	10	Watkinsville	1	Cecil scl	W-I	48
				Madison sl	W-I	52
Idaho	56*	Moscow		Thatuna sil	W-1, W-2	422
	68	Boise	2	Unnamed range soils	Reynolds Ck. & Sheep Ck.	556
Ill.	17*	Edwardsville	4	Iva sil	W-1, W-2, W-4	134
				Muren soils	W-1, W-2, W-4	138
	61	Monticello	2	Alexis sil	W-II	438
				Sable sicl	W-I, IA	446
				Drummer sicl	W-I, W-II, IA, IB	450
				Elburn sil	W-I	454
				Ipava sil	W-I, IA	456
				Virgil sil	W-I	462
				Thorp sil	W-I, W-II, IB	468
Ind.	19*	Lafayette	20	Chalmers sicl	#2,5,6,10,11,12,14,18	144
				Fincastle sil	#31,32,33,34	148
				Celina sil	#31,32	156
				Dana sil	#10	160
				Raub sil	#2,4,5,6,8,10,11,12,14,15, 18,25	164
				Parr sil	#2,4,5,6,7,8,10,11,12,14,15, 18,20,25	168
Iowa	20*	Clarinda	5	Marshall sicl	W/S V,W,X,Y,Z	176
				Colo sicl	W/S V,W,X,Y,Z	180
Md.	5*	College Park	8	Beltsville sil	W-1,2,6,7,8,9,10	8
				Berwyn sil	W-1,2	12
				Chillum grl	W-1,2,5,9,10	14
				Hyattsville l	W-2,3,4,6,7,10	18
				Leonardtown sil	W-1,7	22
				Sassafras sl	W-3,4,6,7	26
Miss.	62	Oxford	17	Grenada sil	Pigeon Roost Creek Experimental Watershed	474
				Loring sil		482
				Providence sil		490
				Lexington sil		498
				Cahaba fscl		506
				Memphis sil		508
Mo.	24*	Bethany	8	Grundy sil	D-1,2,3;Pa-B	184
				Shelby l	D-1,2,2;Pa-A,B,C; I-J-1	188
				Judson sil	Pa-A,B,C	192

Table 2. (Continued)

State	Loc. no.	Locality	No. w/s	Soil type	Watershed represented	Page
Nebr.	44	Hastings	13	Colby sil	W-3, W-8, W-11	342
				Hastings sil	"	346
				Hastings sicl	"	352
				Holdrege sil	"	354
				Holdrege sicl	"	356
				Hobbs sil	"	362
				Nuckolls sil	"	366
N.J.	X1	Beemerville	0	Troy grl	Runoff plots	600
	X2	Marlboro	0	Freehold ls	Plots	602
N. Mex.	47	Albuquerque	3	Billings sil	Montano Grant W/S I, II,	402
				Chacra scl	III	404
				Canoncito cl	" " "	406
				Persayo sic	" " "	408
				Progresso fsl	" " "	410
				Rough land	" " "	414
				Sandstone land	" " "	416
				Billings cl	" " "	418
				Travesilla-like fsl	" " "	420
N.Y.	01	Arnot Forest	2	Bath chsil	W-1	2
				Mardin sil	W-1	4
				Volusia chsil	W-1	6
	X3	Marcellus	0	Nellis grl	Plots	606
				Honeoye sil	Plots	608
Ohio	26	Coshocton	35	Keene sil		194
				Latham/Cavode sil		202
				Hartsells l	Little Mill Creek Exp.	206
				DeKalb sl	Watershed and Government	214
				Wellston sil	lands.	218
				Gilpin sil		222
				Berks loam		226
Okla.	36	Muskogee	3	Talihina cl	W-4	258
				Collinsville l	W-4	260
				Dennis sil	W-1, W-2	262
				Taloka sil	W-2	264
	37	Stillwater	3	Albion l	W-4	266
				Port sil	W-4	270
				Kirkland sil	W-4	272
				Lucien vfsl	W-4	274
				Norge sil	W-4	276
				Renfrow sil	W-1, W-3, W-4	280
				Renfrow sicl	W-1, W-3, W-4	282
				Vernon cl	W-1, W-3, W-4	284
S. Dak.	72	Newell	15	Pierre c	W-3, 9, 10, 11, 12, 13, 14, 15	564
				Larb-like sicl		568
				Bascom-like c		572
				Lismas c	W-2, 3, 9, 10-15	576
				Morton l		580
				Vebar fsl	W-4, 5, 6, 7, 9	584
				Rhoades l	W-2, 3, 4, 5, 6, 7, 8, 9, 13	588
				Rhoades fsl	W-2, 3, 4, 5, 6, 7, 9	590
				Rhoades Assoc. cl	W-4	592
				Rhoades Assoc. scl	W-4	594
				Flasher fsl	W-2, 4, 5, 6, 7, 8, 9	596
Tex.	39	Spur	9	Abilene cl	All watersheds	286
				Tillman cl	" "	290
	40	Tyler	4	Boswell fsl	GS-2	294
				Bowie fsl	GS-3, 4, 5	298
				Kirvin fsl	GS-2, 3, 4	302
				Bub grsl	GS-2, 4	306
	41	Vega	2	Mansker cl	W-1, W-2	310
				Potter grl	W-1, W-2	314
				Pullman sicl	W-1, W-2	316
	42	Riesel	20	Austin sic	Y, Y-2, 4, 6, 8, 10	324
				Crockett cl	C, D, G	326
				Crockett fsl	C, D, G	328
				Houston bl. c	All watersheds	330
				Houston c	W-1, 2; Y-1, 2, 4, 6, 7; SW-17	332
				Trinity c	G, Y, Y-2	334
				Burleson c	D	336
				Wilson cl	C, D, G	340

Table 2. (Continued)

State	Loc. no.	Locality	No. w/s	Soil type	Watershed represented	Page
Vt.	67	Danville	4	Cabot vstsil		538
				Cabot sil	All watersheds	540
				Calais l		544
				Calais sil		546
				Colrain fsl		548
				Buckland vstsil	All watersheds	550
				Buckland sil	except W-9	552
				Buckland l		554
Va.	13	Blacksburg	8	Frederick sil	1306, 1307	58
				Greendale sil	1306, 1307	60
				Groseclose sil	1306	62
				Litz sil	1306, 1307	66
				Lodi l	1306, 1307	68
				Edneyville fsl	1308	70
				Chester l	1308	72
				Glenelg l	1308	74
				Brandywine l	1308	76
				Appling fsl	1310, 1311	78
				Cecil fsl	1309, 1310	80
				Wilkes fsl	1309	82
				Appling cfsl	1310, 1311	84
				Cecil gritty sl	1309, 1310, 1315	92
				Lloyd l	1315	100
				Lloyd cl	1315	102
				Cecil grfsl	1310, 1311, 1315	104
				Tatum sil	1314	108
				Fluvanna fsl	1314	112
				Nason sil	1314	120
				Penn sil	1312	128
				Catlett sil	1312	130
				Croton sil	1312	132
Wash.	60	Pullman	8	Garfield sil		426
				Garfield sicl	All watersheds	428
				Palouse sil		430
				Naff sil		434
W.Va.	66	Moorefield	4	Clarksburg sil	W-1,2,4	532
				Litz shsil	W-1,2,4	536
Wis.	31	Fennimore	4	Dodgeville sil		230
				Judson sil	All watersheds	232
				Tama sil		234
	32	La Crosse	2	Dubuque sil	CW and CWA	238
				Fayette sil	CW and CWA	240

MOISTURE-TENSION DATA AND SOIL DESCRIPTIONS

Profile descriptions are given on the left-hand sheet of facing pages. Many of the soils listed in the hydrologic data releases by ARS[11] have since been combined or renamed. Because current names and classifications are used, pertinent watersheds are indicated for reference.

Physical data are given on the right-hand sheet of facing pages.

Identification is coded as follows:

Location	Soil	Land Use	Pit
05	03	1	1

The numerical coding for land use is related to the alphameric coding used in the profile description as follows:

1 = P for long-term pasture
2 = C for long-term cultivated
3 = F for long-term forest or woods
4 = I for long-term idle land

and for pits:
1 = a for first pit
2 = b for second pit

Moisture is given for five tensions in each horizon as:
(1) first and third lines in percent dry weight
(2) second line in percent volume

Bulk density (BD) in grams per cubic centimeter, is given for each horizon as:

(1) first line as obtained at 0.3-bar retention
(2) second line as obtained after ovendrying the sample

Total porosity (TP) is given in percent volume computed by assuming specific gravities equal to 2.65 for all soils ~~in both moist~~ and ovendry conditions.

Saturated Conductivity (K) is given in inches per hour for each duplicate slice of soil fragment obtained.

Rock percent is percent of weight particles larger than 2.0mm, as determined by dry sieving after crushing with a rubber pestle.

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[11] See footnote 3.

BATH CHANNERY SILT LOAM (01,01,I,a and b)

Location: Tompkins Co., N. Y.; Arnot Watershed W-1.
Vegetation and land use: Idle
Topography: Strongly sloping
Drainage: Well to moderately well drained
Parent Material: Acid medium textured glacial till from siltstone and shale
Described and sampled by: D. F. Flora and G. P. Lawless

Horizon	Description
Pit a	
Ap	0 to 8 inches. Dark grayish brown (10YR 4/2) channery silt loam, rubbed, dark brown (10YR 4/3); weak medium and fine granular structure; strongly acid; abundant fine and common large roots; abrupt smooth boundary.
B21	8 to 15 inches. Dark yellowish brown (10YR 4/4) channery silt loam; weak medium granular structure; very friable when moist; strongly acid; common fine and large roots; clear wavy boundary. 5 to 8 inches thick in pit exposure.
B22	15 to 24 inches. Yellowish brown (10YR 5/4) channery or very channery silt loam; weak fine subangular blocky structure crushes to weak fine granular; friable when moist; strongly acid; common large and few fine roots; clear wavy boundary. 8 to 10 inches thick in pit exposure.
A'2	24 to 26 inches (discontinuous horizon). Olive gray (5Y 5/2) very channery coarse silt loam with common fine and medium distinct dark yellowish brown (10YR 4/4) mottles; weak thick platy structure; friable when moist; strongly acid; few fine and coarse roots; abrupt irregular boundary. 0 to 2 inches thick in pit exposure.
B'x	26 to 38 inches plus. Dark grayish brown (2.5Y 4/2) very channery loam; weak thick platy structure in 18- to 24-inch polygons surrounded by tongues of A'2 material (gray (5Y 5/1) centers and strong brown (7.5YR 5/6-5/8) borders) which taper from 1 to 1/2 inch; very firm when moist; strongly acid; thin clay skins apparent in some pores and around pebbles; few roots in material around polygons.
Pit b	
Ap	0 to 8 inches. Dark brown (10YR 3/3) channery silt loam, rubbed color is same; some charcoal remnants; weak medium and fine granular structure; very friable when moist; strongly acid; abundant fine and coarse roots; abrupt smooth boundary.
B21	8 to 14 inches. Dark brown to brown (7.5YR 4/4) channery silt loam; weak medium and fine granular structure; very friable when moist; strongly acid; common fine and coarse roots; clear smooth boundary. 5 to 10 inches thick in pit exposure.
B22	14 to 22 inches. Light olive brown (2.5Y 5/4) very channery silt loam; weak fine subangular blocky structure; friable when moist; strongly acid; few fine and coarse roots; clear wavy boundary. 7 to 10 inches thick in pit exposure.
A'2x	22 to 27 inches. Olive (5Y 5/3) very channery coarse silt loam or loam with common fine and medium distinct dark yellowish brown mottles; weak thick platy structure; firm when moist; strongly acid; few fine roots; clear irregular boundary. 5 to 7 inches thick in pit exposure.
B'x	27 to 36 inches plus. Dark grayish brown (2.5Y 4/2) very channery loam; weak thick platy structure in 18- to 24-inch polygons surrounded by tongues of A'2x material (gray (5Y 5/1) centers and strong brown (7.5YR 5/8) borders) which taper from 1 to 1/2 inch; very firm when moist; strongly acid; thin clay skins are evident in some pores and around pebbles; few fine roots in upper part.

Remarks: A few flag-size and stone-size slabs of sandstone encountered from B22 downward.

BATH CHANNERY SILT LOAM (01,01,I,a and b)

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      WEIGHT  PERCENT  AND  VOLUME  PERCENT  OF  WATER  RETAINED

IDENTIFICATION        T E N S I O N S  (BARS)
                                                                       BD        TP
 1   1   4   1       .1        .3          .6          3.         15.       G/CC      PCT

     DEPTH                                                                    3
      0              38.16     29.90       24.33       23.03      14.04       .96     63.77
                     36.63     28.70       23.35       22.10      13.47
                     FRAGMENT                           SIEVED 18.12ROCK PERCENT 28.68
                                                                              3
      8              32.08     30.18       28.15       27.77      12.32      1.05     60.38
                     33.68     31.68       29.55       29.15      12.93
                     FRAGMENT                           SIEVED 12.85ROCK PERCENT 40.14
                                                                              3
     15              27.47     26.80       21.44       18.02       9.88      1.40     47.17
                     38.45     37.52       30.01       25.22      13.83
                     FRAGMENT                           SIEVED  9.76ROCK PERCENT 59.66
                                                                              3
     24              19.56     18.28       13.09       12.10       5.96      1.64     38.11
                     32.07     29.97       21.46       19.84       9.77
                     FRAGMENT                           SIEVED 10.13ROCK PERCENT 79.12
                                                                              3
     26              13.05     10.82        9.17        8.30       4.97      1.74     34.34
                     22.70     18.82       15.95       14.44       8.64
                     FRAGMENT                           SIEVED  7.34ROCK PERCENT 46.75

IDENTIFICATION        T E N S I O N S  (BARS)
                                                                       BD        TP
 1   1   4   2       .1        .3          .6          3.         15.       G/CC      PCT

     DEPTH                                                                    1
      0              37.49     33.10       24.22       22.51      12.96      1.01     61.89
                     37.86     33.43       24.46       22.73      13.08
                     FRAGMENT                           SIEVED 16.75ROCK PERCENT 35.98
                                                                              3
      8              35.71     28.37       24.51       23.33      14.58      1.06     60.00
                     37.85     30.07       25.98       24.72      15.45
                     FRAGMENT                           SIEVED 11.61ROCK PERCENT 34.41
                                                                              3
     14              26.13     25.39       21.51       19.68      13.13      1.24     53.21
                     32.40     31.48       26.67       24.40      16.28
                     FRAGMENT                           SIEVED  8.95ROCK PERCENT 69.70
                                                                (14.19)       1
     22              21.77     20.65       16.65       14.17       5.51      1.68     36.60
                     36.57     34.69       27.97       23.80       9.25      1.81     31.70
                     FRAGMENT 20.73                     SIEVED  6.58ROCK PERCENT 66.64
                                                                              3
     27              16.47     15.29       14.49       11.25       7.41      1.74     34.34
                     28.65     26.60       25.21       19.57      12.89
                     FRAGMENT                           SIEVED  6.51ROCK PERCENT 74.82


        1=FIST
        2=CORE
        3=LOOSE
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ARNOT FOREST, NEW YORK

MARDIN SILT LOAM (01,04,I,a and b)

Location: Tompkins Co., N. Y.; Arnot Watershed W-1
Vegetation and land use: Idle
Topography: Pit a, strongly sloping; Pit b, gently sloping.
Drainage: Moderately to well drained.
Parent Material: Acid medium textured glacial till from siltstone and shale; pit a covered with a thin unconforming silt mantle.
Described and sampled by: D. F. Flora and G. P. Lawless

Horizon	Description
Pit a	
Ap	0 to 8 inches. Dark grayish brown (10YR 4/2), rubbed, dark brown (10YR 4/3), silt loam (less than 5 percent channers); weak medium and fine granular structure; very friable when moist; strongly acid; abundant fine roots; abrupt smooth boundary.
B21	8 to 10 inches. Dark yellowish brown (10YR 4/4) silt loam (less than 5 percent channers); weak medium granular structure; very friable when moist; strongly acid; common fine roots; abrupt smooth boundary. 1 to 2½ inches thick in pit exposure.
IIB22	10 to 18 inches. Dark brown to brown (10YR 4/3) channery silt loam (fine) with common fine faint dark yellowish brown (10YR 4/4) mottles; moderate fine subangular blocky structure; friable when moist; thin patchy clay skins are evident on ped surfaces and in pores; strongly acid; few fine roots; abrupt irregular boundary. 6 to 10 inches thick in pit exposure.
IIB'x	18 to 40 inches plus. Dark grayish brown (10YR 4/2) very channery silt loam with few to common prominent fine and medium black (10YR 2/1) manganese stains; weak thick platy structure in 18- to 20-inch polygons; tongues of IIB22 material 1 to 1/2 inch thick funnel into this horizon around polygons; firm when moist; thin clay films in some pores; strongly acid; no roots except in materials surrounding the polygons.
Pit b	
Ap	0 to 7 inches. Dark grayish brown (10YR 4/2), rubbed, dark brown to brown (10YR 4/3) channery silt loam; weak medium and fine granular structure; very friable when moist; strongly acid; abundant fine roots; abrupt smooth boundary.
B21	7 to 12 inches. Yellowish brown (10YR 5/4) channery silt loam; weak fine subangular blocky structure that crushes to weak fine granular; friable when moist; strongly acid; common fine roots; clear smooth boundary. 4 to 6 inches thick in pit exposure.
B22	12 to 18 inches. Light olive brown (2.5Y 5/4) channery silt loam with common fine and medium distinct dark yellowish brown (10YR 4/4) mottles; weak fine subangular blocky structure; friable when moist; strongly acid; few fine roots; clear wavy boundary. 3 to 6 inches thick in pit exposure.
A'2	18 to 20 inches. Light olive gray (5Y 5/2) channery coarse silt loam with many medium prominent strong brown (7.5YR 5/8) and dark yellowish brown (10YR 4/4) mottles; weak thick platy structure; friable when moist; strongly acid; few fine roots; clear irregular boundary. 2 to 8 inches thick in pit exposure. Tongues of this material funnel into the pan around 12- to 18-inch polygons; tongues are 4 to 6 inches in diamete at top tapering to 1 to 1/2 inch thick within 6-inch depth; they have gray centers and dark brown (7.5YR 4/4) borders.
B'x	20 to 38 inches plus. Dark grayish brown to brown (10YR 4/2-4/3) channery coarse silt loam or loam with few fine and medium prominent olive gray (5Y 5/2) and faint dark yellowish brown mottles which occur as thin erratic streaks and bodies; weak thick platy structure in 12- to 18 inch polygons; very fiem when moist; thin clay skins are very evident in pores; strongly acid; few fine roots in material surrounding the polygons.

MARDIN SILT LOAM (01,04,I,a and b)

WEIGHT PERCENT AND VOLUME PERCENT OF WATER RETAINED

IDENTIFICATION TENSIONS (BARS)

1 4 4 1	.1	.3	.6	3.	15.	BD G/CC	TP PCT	K IN/HR
DEPTH						1		
0	33.71	32.39	26.62	23.17	10.55	1.17	55.85	1.98
	39.44	37.89	31.14	27.10	12.34	1.29	51.32	2.42
	FRAGMENT	29.67		SIEVED	11.49ROCK	PERCENT	28.42	
						1		
8	32.59	28.42	27.10	23.07	9.52	1.40	47.17	5.16
	45.62	39.78	37.94	32.29	13.32	1.48	44.15	1.36
	FRAGMENT	26.20		SIEVED	11.73ROCK	PERCENT	30.84	
						1		
10	24.83	22.63	19.21	15.82	7.87	1.49	43.77	.57
	36.99	33.71	28.62	23.57	11.72	1.57	40.75	.41
	FRAGMENT	23.74		SIEVED	9.05ROCK	PERCENT	31.79	
						1		
18	16.11	15.56	13.86	10.67	9.53	1.86	29.81	.73
	29.96	28.94	25.77	19.84	17.72	1.93	27.17	1.21
	FRAGMENT	13.79		SIEVED	6.94ROCK	PERCENT		

IDENTIFICATION TENSIONS (BARS)

1 4 4 2	.1	.3	.6	3.	15.	BD G/CC	TP PCT	K IN/HR
DEPTH						1		
0	39.86	33.33	31.33	26.31	12.94	1.17	55.85	2.71
	46.63	38.99	36.65	30.78	15.13	1.32	50.19	5.08
	FRAGMENT	36.70		SIEVED	14.70ROCK	PERCENT	28.52	
						1		
7	36.29	31.31	29.06	26.06	9.28	1.30	50.94	1.80
	47.17	40.70	37.77	33.87	12.06	1.39	47.55	5.25
	FRAGMENT	20.52		SIEVED	12.13ROCK	PERCENT	31.08	
						1		
12	26.00	23.79	21.89	20.64	6.34	1.61	39.25	.11
	41.86	38.30	35.24	33.23	10.20	1.66	37.36	.13
	FRAGMENT	21.57		SIEVED	9.21ROCK	PERCENT	50.70	
						1		
18	19.67	17.74	16.17	13.44	6.80	1.61	39.25	.25
	31.66	28.56	26.03	21.63	10.94	1.67	36.98	.08
	FRAGMENT	15.42		SIEVED	13.78ROCK	PERCENT	12.26	
					(7.07)	1		
20	17.92	16.73	15.60	13.29	6.57	1.58	40.38	.67
	28.31	26.43	24.64	20.99	10.38	1.67	36.98	.68
	FRAGMENT	18.52		SIEVED	7.34ROCK	PERCENT	44.59	

1=FIST
2=CORE
3=LOOSE

VOLUSIA CHANNERY SILT LOAM (01,05,I,a and b)

Location: Tompkins Co., N. Y.; Arnot Watershed W-1
Vegetation and land use: Idle
Topography: Gently sloping
Drainage: Somewhat poor
Parent Material: Acid medium textured glacial till from siltstone and shale.
Described and sampled by: D. F. Flora and G. P. Lawless

Horizon	Description
Pit a	
Ap	0 to 7 inches. Dark grayish brown (10YR 4/2); rubbed, dark brown (10YR 4/3) channery silt loam; weak medium and fine granular structure; very friable when moist; strongly acid; abundant fine roots; abrupt smooth boundary.
B2	7 to 11 inches. Light olive brown (2.5Y 5/4) channery silt loam with common fine distinct strong brown (7.5YR 5/6) and gray (5Y 5/1) mottles; weak fine subangular blocky structure; friable when moist; strongly acid; common fine roots; abrupt smooth boundary. 3 to 5 inches thick in pit exposure.
A'2	11 to 16 inches. Olive gray (5Y 5/2) channery silt loam (slightly coarser than horizons above or below) with common to many medium prominent strong brown (7.5YR 5/6) mottles; weak thick platy structure; friable when moist; strongly acid; few fine roots; clear irregular boundary. 4 to 14 inches thick in pit exposure. Tongues of this material funnel into the B'x around 16- to 18-inch polygons. They are approximately 6 inches across at the top and taper to 1 to 1/2 inch in thickness within 6 to 12 inches of depth. They have light gray (N 7/0) centers and strong brown (7.5YR 5/6) borders. Ovate shaped bodies from fist size to 12 inches across horizontally are completely engulfed by the A'2 material in the top foot of the fragipan horizon.
B'x	16 to 40 inches plus. Olive (5Y 5/3) channery silt loam with few fine faint gray (5Y 5/1) and common very dark brown (10YR 2/2) manganese stains; weak thick platy structure in 16- to 18-inch polygons; very firm when moist; strongly acid; few fine roots in material surrounding the polygons. (There may be thin clay skins in pores but soil was so moist that a clear determination was not possible.)
Pit b	
Ap	0 to 8 inches. Very dark grayish brown (10YR 3/2); rubbed, dark grayish brown (10YR 4/2) channery silt loam; weak medium and fine granular structure; very friable; strongly acid; abundant fine roots; abrupt smooth boundary.
B2	8 to 13 inches. Olive (5Y 5/3) channery silt loam with many medium faint dark brown, few fine faint gray (5Y 5/1) and few fine prominent strong brown (7.5YR 5/6) mottles; weak fine subangular blocky structure; friable when moist; strongly acid; common fine roots; clear smooth boundary. 2 to 5 inches thick in the pit exposure.
A'2	13 to 22 inches. Gray to light gray (5Y 6/1) channery silt loam (high coarse silt content) with many medium and coarse prominent strong brown (7.5YR 5/6 and 5/8) and olive brown (2.5Y 4/4) mottles; very weak thick platy structure; friable when moist; strongly acid; few fine roots; clear irregular boundary. 4 to 18 inches thick in pit exposure. Tongues of this material funnel into the pan (B'x) around 12- to 18-inch polygons. They range from 10 inches wide at the top and within a foot of depth taper to 1 to 1/2 inch. Centers are gray to light gray (5Y 6/1) with borders of strong brown (7.5YR 4/6).
B'x	22 to 40 inches plus. Olive (5Y 4/3) channery silt loam with common fine distinct gray (5Y 5/1) and dark yellowish brown (10YR 4/4) mottles; common fine prominent black (10YR 2/1) manganese stains are also present; weak thick platy structure in 12- to 18-inch polygons; very firm when moist; strongly acid; thin clay skins are present in some pores; few fine roots in material around the polygons.

VOLUSIA CHANNERY SILT LOAM (01,05,I,a and b)

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     WEIGHT  PERCENT  AND  VOLUME  PERCENT  OF  WATER  RETAINED

IDENTIFICATION         T E N S I O N S  (BARS)
                                                                BD       TP       K
 1   5   4   1     .1         .3         .6         3.         15.      G/CC     PCT     IN/HR

     DEPTH                                                                1
      0            43.19      39.23      37.49      30.72       9.78     1.11     58.11     .94
                   47.94      43.54      41.61      34.09      10.85     1.22     53.96     .74
                   FRAGMENT   37.41                  SIEVED    11.72ROCK PERCENT  22.00
                                                                          1
      7            29.77      25.73      23.20      21.77       5.98     1.41     46.79     .10
                   41.97      36.27      32.71      30.69       8.43     1.50     43.40     .26
                   FRAGMENT   24.12                  SIEVED     9.16ROCK PERCENT  24.30
                                                                          1
     11            22.42      18.02      17.20      14.28       6.00     1.64     38.11     .10
                   36.76      29.55      28.20      23.41       9.84     1.74     34.34     .18
                   FRAGMENT   16.45                  SIEVED     9.26ROCK PERCENT  34.13
                                                                          1
     16            14.46      13.94      13.31      11.24       9.18     1.69     36.23     .14
                   24.43      23.55      22.49      18.99      15.51     1.75     33.96     .68
                   FRAGMENT   14.59                  SIEVED    15.76ROCK PERCENT  49.47

IDENTIFICATION         T E N S I O N S  (BARS)
                                                                BD       TP       K
 1   5   4   2     .1         .3         .6         3.         15.      G/CC     PCT     IN/HR

     DEPTH                                                                1
      0            42.02      40.12      36.64      31.73      16.00     1.08     59.25    5.68
                   45.38      43.32      39.57      34.26      17.28     1.23     53.58     .83
                   FRAGMENT   39.31                  SIEVED    17.33ROCK PERCENT  34.32
                                                                          1
      8            34.45      27.57      25.98      23.38      10.04     1.48     44.15     .17
                   50.98      40.80      38.45      34.60      14.85     1.55     41.51     .34
                   FRAGMENT   26.19                  SIEVED    10.16ROCK PERCENT  33.38
                                                                          1
     13            19.84      18.96      17.16      14.75      12.76     1.64     38.11     .02
                   32.53      31.09      28.14      24.19      20.92     1.74     34.34     .13
                   FRAGMENT   15.13                  SIEVED    10.36ROCK PERCENT   5.49
                                                                          1
     22            17.62      17.09      15.03      12.26       6.43     1.69     36.23     .06
                   29.77      28.88      25.40      20.71      10.86     1.70     35.85     .08
                   FRAGMENT   16.68                  SIEVED     9.29ROCK PERCENT  41.88

      1=FIST
      2=CORE
      3=LOOSE
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BELTSVILLE SILT LOAM (05,03,P,a and b)

Location: University of Maryland Research Farm, Montgomery Co., Md.
Vegetation and land use: Pasture
Topography: Nearly level to gently sloping
Drainage: Moderately well drained
Parent Material: Silty to somewhat sandy loessial materials over strongly weathered sandy and gravelly outwash deposits of the coastal plain.
Described and sampled by: R. M. Kirby; G. P. Lawless and G. Schumaker.

Horizon	Description
Pit a	
Ap	0 to 8 inches. Yellowish brown (10YR 5/4) silt loam; weak fine granular structure; friable when moist; slightly sticky but non-plastic when wet; roots abundant; slightly acid; abrupt smooth boundary; horizon is 8 inches thick.
B1	8 to 12 inches. Brownish yellow (10YR 6/8) heavy silt loam to silty clay loam; moderate fine to medium subangular blocky structure; firm when moist; slightly sticky and slightly plastic when wet; strongly acid; clear wavy boundary; horizon is 4 to 6 inches thick.
B2t	12 to 18 inches. Strong brown (7.5YR 5/8) silty clay loam; faintly variegated with light brown (7.5YR 6/4); moderate medium subangular blocky structure; firm when moist; slightly sticky and slightly plastic when wet; strongly acid; clear smooth boundary; horizon is 6 to 8 inches thick.
Cx1	18 to 29 inches. Reddish yellow (7.5YR 7/6) very fine sandy loam or loam; with mottles of very pale brown (10YR 8/4) and reddish yellow (7.5YR 7/8); weak to moderate medium to coarse platy structure; very firm when moist; nonsticky and non-plastic when wet; extremely acid; clear smooth boundary; horizon is 9 to 11 inches thick.
C1	29 inches plus. Reddish yellow (7.5YR 6/8) silty clay with few medium distinct mottles of light olive brown (2.5Y 5/4); massive in place breaking out as weak medium subangular blocky structure; firm when moist; sticky and plastic when wet; extremely acid.
Pit b	
Ap	0 to 8 inches. Yellowish brown (10YR 5/4) silt loam; weak fine granular structure; friable when moist; slightly sticky and nonplastic when wet; roots abundant; slightly acid (limed); abrupt smooth boundary; horizon is 8 inches thick.
B1	8 to 14 inches. Brownish yellow (10YR 6/8) heavy silt loam; weak medium subangular blocky structure; friable when moist; slightly sticky and slightly plastic when wet; roots common; acid; clear wavy boundary; horizon is 6 to 8 inches thick.
B2t	14 to 21 inches. Yellow (10YR 7/8) silty clay loam, with a few faint mottles of very pale brown (10YR 8/4); moderate medium to coarse subangular blocky structure; friable when moist; slightly sticky and plastic when wet; few roots; yellowish brown (10YR 5/4) prominent clay coats; strongly acid; clear smooth boundary; horizon is 7 to 8 inches thick.
Bx	21 to 27 inches. Dark yellowish brown (10YR 4/4) heavy silty clay loam, with common medium distinct mottles of olive (5Y 5/3) and yellowish brown (10YR 5/6); weak medium platy structure; very firm when moist; sticky and plastic when wet; extremely acid; clear smooth boundary; horizon is 6 to 8 inches thick.
Cx	27 inches plus. Reddish yellow (7.5YR 6/8) silty clay with few fine gravels and few medium distinct mottles of light olive brown (2.5Y 5/4); massive, breaking out into medium subangular blocky structure; very firm when moist; sticky and plastic when wet; extremely acid.

COLLEGE PARK, MARYLAND

BELTSVILLE SILT LOAM (05,03,P,a and b)

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       WEIGHT  PERCENT  AND  VOLUME  PERCENT  OF  WATER  RETAINED

IDENTIFICATION         T E N S I O N S  (BARS)
                                                                  BD        TP      K
 5   3   1   1      .1        .3        .6        3.        15.       G/CC      PCT    IN/HR

     DEPTH                                                            1
      0             25.00     22.25     15.70     13.33      8.27     1.53      42.26    .23
                    38.25     34.04     24.02     20.39     12.65     1.59      40.00    .15
                    FRAGMENT  19.99                  SIEVED   6.86ROCK PERCENT   2.71
                                                                      1
      8             28.64     24.60     23.91     13.26      8.18     1.53      42.26    .10
                    43.81     37.63     36.58     20.28     12.51     1.60      39.62    .04
                    FRAGMENT  19.32                  SIEVED   7.66ROCK PERCENT   2.79
                                                                      1
     12             23.91     23.02     16.87     13.01     10.13     1.58      40.38    .17
                    37.77     36.37     26.65     20.55     16.00     1.66      37.36    .16
                    FRAGMENT  20.27                  SIEVED   8.90ROCK PERCENT   3.05
                                                                      1
     18             15.06     14.76     11.11      6.84      5.35     1.63      38.49    .37
                    24.54     24.05     18.10     11.14      8.72     1.86      29.81    .18
                    FRAGMENT  11.99                  SIEVED   4.66ROCK PERCENT  31.22
                                                                      1
     29             19.07     17.67     15.06     14.48     13.53     1.74      34.34    .11
                    33.18     30.74     26.20     25.19     23.54     1.80      32.08    .09
                    FRAGMENT  16.35                  SIEVED  13.69ROCK PERCENT   7.32
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IDENTIFICATION         T E N S I O N S  (BARS)
                                                                  BD        TP      K
 5   3   1   2      .1        .3        .6        3.        15.       G/CC      PCT    IN/HR

     DEPTH                                                            1
      0             22.39     16.19     14.39     11.36      5.63     1.59      40.00    .14
                    35.60     25.74     22.88     18.06      8.95     1.63      38.49    .10
                    FRAGMENT  18.25                  SIEVED   7.26ROCK PERCENT   2.80
                                                                      1
      8             25.13     19.16     17.73     14.64      8.95     1.62      38.87    .20
                    40.71     31.03     28.72     23.71     14.49     1.65      37.74    .04
                    FRAGMENT  18.02                  SIEVED  10.88ROCK PERCENT   3.82
                                                                      1
     14             23.20     19.11     16.84     13.77      7.52     1.59      40.00    .07
                    36.88     30.38     26.77     21.89     11.95     1.63      38.49    .08
                    FRAGMENT  19.51                  SIEVED  11.49ROCK PERCENT  24.60
                                                                      1
     21             17.37     15.69     14.19     10.65      7.00     1.68      36.60    .21
                    29.18     26.35     23.83     17.89     11.76     1.74      34.34    .05
                    FRAGMENT  16.90                  SIEVED  10.24ROCK PERCENT  20.42
                                                                      1
     27             15.62     13.09     12.85     11.22      8.05     1.74      34.34    .03
                    27.17     22.77     22.35     19.52     14.00     1.76      33.58    .06
                    FRAGMENT  11.73                  SIEVED  10.92ROCK PERCENT  33.20


      1=FIST
      2=CORE
      3=LOOSE
```

BELTSVILLE SILT LOAM (05,03,F,b)*

Location: University of Maryland Research Farm, Montgomery Co., Md.
Vegetation and land use: Forest; hardwoods.
Topography: Nearly level
Drainage: Moderately well drained
Parent Material: Silty loessial materials; over strongly weathered sandy and gravelly outwash deposits of the coastal plain.
Described and sampled by: R. M. Kirby; G. P. Lawless, G. Schumaker

Horizon	Description
01	1 to ½ inch. Loose leaf litter and twigs.
02	½ to 0 inch. Mat of decomposed organic matter.
A1	0 to 2 inches. Dark grayish brown (10YR 4/2) light silt loam; weak fine crumb structure; very friable when moist; nonplastic and nonsticky when wet; roots abundant; strongly acid; abrupt smooth boundary; horizon is 2 inches thick.
A2	2 to 10 inches. Yellowish brown (10YR 5/6) silt loam; weak fine subangular blocky structure; friable when moist; nonplastic and slightly sticky when wet; roots abundant; strongly acid; clear smooth boundary; horizon is 8 to 9 inches thick.
B1	10 to 16 inches. Yellowish brown (10YR 5/4) heavy silt loam; moderate fine and medium subangular blocky structure; friable when moist; sticky and slightly plastic when wet; roots abundant; few old root channels and some evidence of worm activity; few brown (10YR 5/3) discontinuous clay coatings; very strongly acid; clear smooth boundary; horizon is 5 to 7 inches thick.
B21t	16 to 21 inches. Yellowish brown (10YR 5/4) silty clay loam; moderate medium subangular blocky structure; slightly firm when moist; plastic and sticky when wet; roots common; some brown (10YR 5/3) clay coatings; very strongly acid; clear smooth boundary; horizon is 5 to 6 inches thick.
B22t	21 to 25 inches. Yellowish brown (10YR 5/8) silty clay loam, faintly variegated with pale brown (10YR 6/3); moderate fine platy and moderate medium subangular blocky structure; firm when moist; plastic and sticky when wet; very few roots; brown (10YR 5/3) prominent clay coatings; strongly acid; abrupt smooth boundary; horizon is 4 to 5 inches thick.
Bx	25 to 33 inches. Dark yellowish brown (10YR 4/4) silty clay loam, with common medium distinct mottles of olive (5Y 5/3) and yellowish brown (10YR 5/6); weak coarse and very coarse platy structure; extremely firm and very brittle when moist; plastic and sticky when wet; very few roots; very strongly acid; clear smooth boundary; horizon is 8 to 10 inches thick.
Cx	33 inches plus. Brownish yellow (10YR 6/6) sandy clay loam, with few medium mottles of light olive brown (2.5Y 5/4); weak coarse platy structure; very firm and very brittle when moist; nonplastic and very slightly sticky when wet; no roots; very strongly acid.

*Examination of pit a indicated site was not typical of Beltsville silt loam; profile of pit b was sampled at two points for testing purposes.

BELTSVILLE SILT LOAM (05,03,F,a and b)

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        WEIGHT  PERCENT  AND  VOLUME  PERCENT  OF  WATER  RETAINED

IDENTIFICATION        T E N S I O N S  (BARS)
                                                                 BD       TP
 5   3   3   1      .1        .3        .6        3.        15.      G/CC     PCT

     DEPTH                                                         1
       2           23.16     22.60     19.07     14.03      4.67     1.41     46.79
                   32.65     31.86     26.88     19.78      6.58     1.47     44.53
                   FRAGMENT  19.86                 SIEVED   4.49ROCK PERCENT  1.64
                                                                   1
      10           23.03     22.39     18.99     16.02     11.69     1.45     45.28
                   33.39     32.46     27.53     23.22     16.95     1.56     41.13
                   FRAGMENT  23.62                 SIEVED  10.05ROCK PERCENT  3.70
                                                                   1
      16           26.36     25.38     19.42     16.27     10.81     1.54     41.89
                   40.59     39.08     29.90     25.05     16.64     1.61     39.25
                   FRAGMENT  23.41                 SIEVED  10.42ROCK PERCENT  3.07
                                                                   1
      21           27.31     25.00     22.05     16.19     10.40     1.46     44.91
                   39.87     36.50     32.19     23.63     15.18     1.54     41.89
                   FRAGMENT  22.69                 SIEVED   9.67ROCK PERCENT  2.66
                                                                   1
      25           21.82     18.62     17.80     12.62      6.78     1.64     38.11
                   35.78     30.53     29.19     20.69     11.11     1.69     36.23
                   FRAGMENT  15.34                 SIEVED   7.93ROCK PERCENT  1.56

IDENTIFICATION        T E N S I O N S  (BARS)
                                                                 BD       TP
 5   3   3   2      .1        .3        .6        3.        15.      G/CC     PCT

     DEPTH                                                         1
       2           23.40     22.14     20.54     10.61      4.67     1.45     45.28
                   33.93     32.10     29.78     15.38      6.77     1.48     44.15
                   FRAGMENT  19.77                 SIEVED   4.49ROCK PERCENT  1.64
                                                                   1
      10           23.74     24.32     18.26     15.30     11.66     1.38     47.92
                   32.76     33.56     25.19     21.11     16.09     1.44     45.66
                   FRAGMENT  22.13                 SIEVED  10.07ROCK PERCENT  3.70
                                                                   1
      16           25.85     24.82     19.46     16.77     10.81     1.46     44.91
                   37.74     36.23     28.41     24.48     15.78     1.54     41.89
                   FRAGMENT  23.74                 SIEVED  11.08ROCK PERCENT  3.07
                                                                   1
      21           27.16     25.73     20.35     18.03     10.40     1.41     46.79
                   38.29     36.27     28.69     25.42     14.66     1.55     41.51
                   FRAGMENT  25.91                 SIEVED   9.48ROCK PERCENT  2.46
                                                                   1
      25           22.28     18.42     15.33     10.58      6.78     1.66     37.36
                   36.98     30.57     25.44     17.56     11.25     1.76     33.58
                   FRAGMENT  16.95                 SIEVED   7.65ROCK PERCENT  1.56


       1=FIST
       2=CORE
       3=LOOSE
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BERWYN SILT LOAM*(05,04,C,a and b)

Location: University of Maryland Research Farm, Montgomery Co., Md.
Vegetation and land use: Cultivated
Topography: Nearly level
Drainage: Moderately well drained
Parent Material: Recently washed fine soil materials of the coastal plain deposited in old drainageways.
Described and sampled by: R. M. Kirby; G. P. Lawless and G. Schumaker

Horizon	Description
Pit a	
Ap	0 to 11 inches. Light yellowish brown (2.5Y 6/4) silt loam; weak very fine and fine crumb structure; very friable when moist; nonsticky and nonplastic when wet; roots abundant; acid; clear smooth boundary; horizon is 10 to 11 inches thick.
C1	11 to 15 inches. Light yellowish brown (2.5Y 6/4) light silt loam; weak fine platy structure perpendicular to horizon; friable when moist; nonsticky and nonplastic when wet; roots abundant; very acid; clear irregular boundary; this horizon has at 15 in. a soft iron precipitated layer 1/8" thick; horizon is 4 to 6 inches thick.
IIC2	15 to 25 inches. Dark grayish brown (2.5Y 4/2) silt loam with many small strong brown (7.5YR 5/6) mottles; weak medium subangular blocky structure; friable when moist; nonsticky and very slightly plastic when wet; many fine roots and root pores; acid; clear wavy boundary; horizon is 10 to 12 inches thick.
IIC3	25 to 37 inches. Yellow (2.5Y 8/6) silty clay loam with 30% mottles of white (2.5Y 8/2) weak medium subangular blocky and strong blocky structure; firm when moist; sticky and plastic when wet; few fine roots; acid; clear wavy boundary; horizon is 10 to 14 inches thick.
IIC4	37 to 57 inches plus. White (2.5Y 8/0) silt loam with few reddish yellow (7.5YR 6/8) mottles; massive; somewhat compact in place; friable when moist; nonsticky and very slightly plastic when wet; no roots; very strongly acid.
Pit b	
Ap	0 to 9 inches. Dark grayish brown (2.5Y 4/2) silt loam; weak fine to medium crumb structure; friable when moist; slightly sticky and slightly plastic when wet; many fine roots; strongly acid; clear smooth boundary; horizon is 9 to 10 inches thick.
C1	9 to 15 inches. Dark brown (10YR 3/3) loam; weak medium subangular blocky structure; very friable when moist; slightly sticky and very slightly plastic when wet; roots common; strongly acid; clear smooth boundary.
IIC2	15 to 25 inches. Dark yellowish brown (10YR 4/4) light silt loam with few light brownish gray (10YR 6/2) mottles; weak medium subangular blocky structure; very friable when moist; slightly sticky and slightly plastic when wet; many fine roots and root pores; strongly acid; clear wavy boundary; horizon is 10 to 12 inches thick.
IIC3	25 to 37 inches. Light yellowish brown (2.5Y 6/4) silt loam with few white (2.5Y 8/2) mottles; weak medium subangular blocky structure; friable when moist; sticky and slightly plastic when wet; few fine roots; acid; clear wavy boundary; horizon is 10 to 13 inches thick.
IIC4	37 to 44 inches. Pale yellow (2.5Y 7/4) and white (2.5Y 8/2) silty clay loam; weak medium subangular blocky structure; friable when moist; slightly sticky and slightly plastic when wet; no roots; very strongly acid; gradual wavy boundary; horizon is 6 to 10 inches thick.
IIC5	44 to 57 inches plus. Light gray (2.5Y 7/0) and olive yellow (2.5Y 6/6) silty clay loam; massive; somewhat compact in place; firm when moist; slightly sticky and plastic when wet; no roots; strongly acid.

NOTE: Horizon IIC2 sampled at 15 to 18 inches and 18 to 25 inches.
Horizon IIC3 sampled at 25 to 29 inches and 29 to 37 inches.

*Iuka silt loam, local alluvium (1967 correlation).

BERWYN SILT LOAM (05,04,C,a and b)

WEIGHT PERCENT AND VOLUME PERCENT OF WATER RETAINED

IDENTIFICATION	TENSIONS (BARS)					BD	TP	K
5 4 2 1	.1	.3	.6	3.	15.	G/CC	PCT	IN/HR
DEPTH						1		
0	26.61	22.55	21.55	16.54	8.66	1.39	47.55	.53
	36.98	31.34	29.95	22.99	12.03	1.45	45.28	.74
	FRAGMENT	24.50		SIEVED	6.57ROCK	PERCENT	1.91	
						1		
11	27.35	22.47	20.76	12.29	6.85	1.50	43.40	.56
	41.02	33.70	31.14	18.43	10.27	1.54	41.89	.06
	FRAGMENT	21.45		SIEVED	8.62ROCK	PERCENT	6.84	
						1		
15	32.57	25.15	21.49	12.50	8.12	1.41	46.79	.20
	45.92	35.46	30.30	17.62	11.44	1.44	45.66	.63
	FRAGMENT	26.56		SIEVED	8.48ROCK	PERCENT	2.04	
						1		
18	38.12	30.69	27.61	23.56	14.73	1.41	46.79	1.00
	53.74	43.27	38.93	33.21	20.76	1.47	44.53	.69
	FRAGMENT	32.52		SIEVED	14.36ROCK	PERCENT	3.36	
						1		
25	23.07	21.76	19.69	14.12	6.68	1.56	41.13	.07
	35.98	33.94	30.71	22.02	10.42	1.61	39.25	.78
	FRAGMENT	19.46		SIEVED	8.87ROCK	PERCENT	18.27	
						1		
29	25.75	22.35	22.22	19.23	9.81	1.62	38.87	.26
	41.71	36.20	35.99	31.15	15.89	1.70	35.85	.26
	FRAGMENT	20.56		SIEVED	11.68ROCK	PERCENT	5.27	
						1		
37	22.17	18.34	14.88	12.33	7.03	1.66	37.36	.34
	36.80	30.44	24.70	20.46	11.66	1.74	34.34	.29
	FRAGMENT	16.47		SIEVED	8.26ROCK	PERCENT	2.62	

IDENTIFICATION	TENSIONS (BARS)					BD	TP	K
5 4 2 2	.1	.3	.6	3.	15.	G/CC	PCT	IN/HR
DEPTH						1		
0	26.08	22.39	18.27	12.69	7.53	1.51	43.02	1.08
	39.38	33.80	27.58	19.16	11.37	1.57	40.75	.92
	FRAGMENT	21.66		SIEVED	8.53ROCK	PERCENT	19.31	
						1		
9	25.00	20.12	16.17	11.71	6.27	1.52	42.64	.58
	38.00	30.58	24.57	17.79	9.53	1.57	40.75	.81
	FRAGMENT	19.36		SIEVED	7.49ROCK	PERCENT	21.36	
						1		
15	25.98	20.26	16.47	9.48	6.87	1.53	42.26	.39
	39.74	30.99	25.19	14.50	10.51	1.58	40.38	.63
	FRAGMENT	17.97		SIEVED	7.54ROCK	PERCENT	22.72	
						1		
25	22.17	18.32	17.14	12.04	5.48	1.65	37.74	.76
	36.58	30.22	28.28	19.86	9.04	1.71	35.47	.69
	FRAGMENT	16.08		SIEVED	7.72ROCK	PERCENT	19.27	
						1		
37	26.23	22.07	18.60	12.82	5.23	1.66	37.36	.05
	43.54	36.63	30.87	21.28	8.68	1.75	33.96	.08
	FRAGMENT	21.47		SIEVED	4.80ROCK	PERCENT	11.39	
						1		
44	24.12	18.31	14.50	9.77	5.25	1.68	36.60	.15
	40.52	30.76	24.36	16.41	8.82	1.76	33.58	.14
	FRAGMENT	17.89		SIEVED	7.35ROCK	PERCENT	4.55	

1=FIST
2=CORE
3=LOOSE

CHILLUM GRAVELLY LOAM (05,05,C, a and b)

Location: University of Maryland Research Farm, Montgomery Co., Md.
Vegetation and land use: Cultivated
Topography: Gently to moderately sloping; pit a, eroded, and pit b, severely eroded.
Drainage: Well drained
Parent Material: Silts and fine sands of late Pleistocene loess overlaying sandy and gravelly partially cemented earlier Pleistocene alluvial outwash.
Described and sampled by: R. M. Kirby; G. P. Lawless and G. Schumaker

Horizon	Description
Pit a	
Ap	0 to 9 inches. Dark brown (10YR 4/3) gravelly loam; weak fine subangular blocky structure; friable when moist; nonsticky and very slightly plastic when wet; roots plentiful; strongly acid; clear smooth boundary; horizon is 9 to 10 inches thick.
B2t	9 to 21 inches. Dark brown (7.5YR 4/4) heavy silty clay loam with 20 percent gravel; moderate medium subangular blocky structure; firm when moist; sticky and plastic when wet; strong clay coats around gravels; roots plentiful; strongly acid; diffuse irregular boundary; horizon is 10 to 14 inches thick.
C1x	21 to 31 inches. Strong brown (7.5YR 5/6) clayey gravel and sand; massive; moderately cemented; firm and brittle when dry but friable when moist or wet; very few roots; gravels are strongly weathered and coated; extremely acid; diffuse irregular boundary; horizon is 9 to 12 inches thick.
C2x	31 to 46 inches. Dark brown (7.5YR 4/4) gravel and sand; firm and brittle when dry but friable when moist or wet; no roots; gravels are smaller than those in horizon above and are strongly weathered; extremely acid; diffuse irregular boundary; horizon is 13 to 17 inches thick.
C3x	46 to 60 inches plus. Reddish yellow (7.5YR 6/6) compacted sand and gravel; massive; strongly cemented; firm and brittle in place and breaks out in large cemented mass which breaks into sand and gravels under very firm pressure; no roots; extremely acid.
Pit b	
Ap	0 to 7 inches. Dark brown (10YR 4/3) gravelly loam; weak fine subangular blocky structure; friable when moist; nonsticky and nonplastic when wet; roots plentiful; strongly acid; clear smooth boundary; horizon is 7 inches thick.
B2	7 to 15 inches. Dark brown (7.5YR 4/4) silty clay loam with 20 percent gravel; moderate medium subangular blocky structure; firm when moist; sticky and plastic when wet; few clay coats around gravels; few roots; strongly acid; diffuse irregular boundary; horizon is 5 to 12 inches thick.
Bx	15 to 20 inches. Strong brown (7.5YR 5/6) gravelly clay and sand; massive; moderately cemented; friable when moist or wet; no roots; extremely acid; diffuse irregular boundary; horizon is 5 to 8 inches thick.
IICx	20 inches plus. Brownish yellow (10YR 6/8) sands and gravels; massive and very firm in place; friable to somewhat loose when moist or wet; no roots; acid.

CHILLUM GRAVELLY LOAM (05,05,C,a and b)

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      WEIGHT  PERCENT  AND  VOLUME  PERCENT  OF  WATER  RETAINED

IDENTIFICATION        T E N S I O N S  (BARS)
                                                                BD       TP       K
 5   5   2   1     .1        .3        .6        3.        15.      G/CC      PCT     IN/HR

     DEPTH                                                         3
      0           25.49     22.95     20.21     13.06      6.57     1.33     49.81      .45
                  33.90     30.52     26.87     17.36      8.73                         .19
                  FRAGMENT                        SIEVED   9.90ROCK PERCENT 35.55
                                                                   1
      9           21.42     18.34     17.43     12.98      8.13     1.54     41.89      .40
                  32.98     28.24     26.84     19.98     12.52     1.62     38.87      .22
                  FRAGMENT  19.13                 SIEVED   9.26ROCK PERCENT 39.39
                                                                   1
     21            6.43      5.99      5.36      4.98      3.05     2.19     17.36      .72
                  14.08     13.11     11.73     10.90      6.67     2.22     16.23      .18
                  FRAGMENT   4.71                 SIEVED  11.82ROCK PERCENT 57.32
                                                                   1
     31            6.05      5.39      4.27      3.52      1.86     2.14     19.25      .73
                  12.94     11.53      9.13      7.53      3.98     2.16     18.49      .06
                  FRAGMENT   5.64                 SIEVED   7.72ROCK PERCENT 53.96
                                                                   3
     46            6.14      4.16      3.91      3.87      3.79     1.86     29.81
                  11.42      7.73      7.27      7.19      7.04
                  FRAGMENT                        SIEVED   7.71ROCK PERCENT 61.56


IDENTIFICATION        T E N S I O N S  (BARS)
                                                                BD       TP       K
 5   5   2   2     .1        .3        .6        3.        15.      G/CC      PCT     IN/HR

     DEPTH                                                         1
      0           26.00     25.60     22.26     19.38      9.07     1.53     42.26      .80
                  39.78     39.16     34.05     29.65     13.87     1.58     40.38      .91
                  FRAGMENT  24.33                 SIEVED  11.68ROCK PERCENT 38.90
                                                                   1
      7           18.26     17.47     16.79     12.53      9.30     1.63     38.49     1.03
                  29.76     28.47     27.36     20.42     15.15     1.70     35.85      .96
                  FRAGMENT  15.62                 SIEVED  19.75ROCK PERCENT 45.81
                                                                   1
     15           14.37     13.49     12.30      9.68      7.41     1.51     43.02      .38
                  21.69     20.36     18.57     14.61     11.18     1.58     40.38      .34
                  FRAGMENT  13.31                 SIEVED  17.75ROCK PERCENT 55.15
                                                                   1
     20            6.42      5.91      2.52      1.97      1.85     2.10     20.75     1.16
                  13.48     12.41      5.29      4.13      3.88     2.12     20.00     2.41
                  FRAGMENT   4.74                 SIEVED   2.07ROCK PERCENT 49.86


        1=FIST
        2=CORE
        3=LOOSE
```

CHILLUM GRAVELLY LOAM (05,05,F,a and b)

Location: University of Maryland Research Farm, Montgomery Co., Md.
Vegetation and land use: Wooded
Topography: Gently sloping
Drainage: Well drained
Parent Material: Silts and fine sands of late Pleistocene loess overlaying sandy and gravelly partially cemented earlier Pleistocene alluvial outwash.
Described and sampled by: R. M. Kirby; G. P. Lawless and G. Schumaker

Horizon	Description
Pit a	
01	1 to ½ inch. Litter of leaves and twigs.
02	½ to 0 inch. Mat of decomposed organic matter with fine roots abundant.
A1	0 to 1 inch. Dark grayish brown (10YR 4/2) loam with few fine gravels; weak fine crumb structure; very friable when moist; nonplastic and nonsticky when wet; roots abundant; extremely acid; abrupt smooth boundary; horizon is 1 inch thick.
A2	1 to 9 inches. Yellowish brown (10YR 5/4) light silt loam with many small gravels and a few medium gravels; weak fine subangular blocky structure; friable when moist; slightly sticky and slightly plastic when wet; roots abundant; strongly acid; clear smooth boundary; horizon is 8 to 10 inches thick.
B1	9 to 16 inches. Yellowish brown (10YR 5/4) heavy silt loam; moderate medium subangular blocky structure; firm when moist; slightly sticky and slightly plastic when wet; roots plentiful; many fine and medium gravels; extremely acid; clear smooth boundary; horizon is 7 to 8 inches thick.
B2t	16 to 21 inches. Strong brown (7.5YR 5/8) silty clay loam; moderate fine and medium subangular blocky structure; very firm when moist; sticky and plastic when wet; roots common; moderately distinct to distinct almost continuous clay coats; many coarse and very coarse gravels; extremely acid; gradual wavy boundary; horizon is 4 to 8 inches thick.
IICx	21 to 49 inches plus. Yellowish red (5YR 5/8) sands and clayey gravels; massive and extremely compacted in place; friable when disturbed; no roots; extremely acid.
Pit b	
01	2 to ½ inch. Litter of leaves and twigs.
02	½ to 0 inch. Mat of decomposed organic materials with abundant fine roots.
A1	0 to 1 inch. Dark grayish brown (10YR 4/2) loam; weak fine crumb structure; very friable when moist; nonsticky and nonplastic when wet; roots abundant; extremely acid; abrupt smooth boundary; horizon is 1 inch thick.
A2	1 to 7 inches. Yellowish brown (10YR 5/4) heavy loam with many small gravels and few medium gravels; weak fine subangular blocky structure; friable when moist; slightly sticky and slightly plastic when wet; roots abundant; strongly acid; clear smooth boundary; horizon is 5 to 7 inches thick.
B1	7 to 11 inches. Yellowish brown (10YR 5/4) light silty clay; moderate medium subangular blocky structure; firm when moist; slightly sticky and slightly plastic when wet; roots plentiful; many fine and medium gravels; extremely acid; clear smooth boundary; horizon is 6 to 7 inches thick.
B2t	11 to 21 inches. Strong brown (7.5YR 5/6) silty clay; moderate fine and medium subangular blocky structure; many coarse gravels; very firm when moist; sticky and plastic when wet; roots common; distinct continuous clay coats; extremely acid; gradual wavy boundary; horizon is 10 to 15 inches thick.
IICx	21 to 49 inches plus. Yellowish red (5YR 5/8) silts, clays and gravels compacted in place; massive; slightly friable when disturbed; extremely acid.

COLLEGE PARK, MARYLAND

CHILLUM GRAVELLY LOAM (05,05,F,a and b)

WEIGHT PERCENT AND VOLUME PERCENT OF WATER RETAINED

IDENTIFICATION	TENSIONS (BARS)					BD	TP	K
5 5 3 1	.1	.3	.6	3.	15.	G/CC	PCT	IN/HR
DEPTH						1		
1	18.34	14.94	13.85	11.11	3.41	1.84	30.57	.04
	33.74	27.48	25.48	20.44	6.27	1.88	29.06	.02
	FRAGMENT	13.46		SIEVED	3.87ROCK	PERCENT	47.56	
						1		
9	18.88	16.19	15.02	12.38	4.05	1.62	38.87	.08
	30.58	26.22	24.33	20.05	6.56	1.68	36.60	.31
	FRAGMENT	14.80		SIEVED	5.76ROCK	PERCENT	41.22	
						1		
16	18.69	15.66	14.33	11.03	6.65	1.58	40.38	.44
	29.53	24.74	22.64	17.42	10.50	1.64	38.11	.54
	FRAGMENT	14.81		SIEVED	16.41ROCK	PERCENT	53.71	
						1		
21	16.66	11.41	9.50	7.98	6.48	1.94	26.79	.18
	32.32	22.13	18.43	15.48	12.57	2.00	24.53	.32
	FRAGMENT	9.83		SIEVED	19.57ROCK	PERCENT	69.68	

IDENTIFICATION	TENSIONS (BARS)					BD	TP	K
5 5 3 2	.1	.3	.6	3.	15.	G/CC	PCT	IN/HR
DEPTH						1		
1	16.79	15.96	14.12	11.17	4.89	1.71	35.47	.74
	28.71	27.29	24.14	19.10	8.36	1.74	34.34	.43
	FRAGMENT	13.15		SIEVED	4.50ROCK	PERCENT	48.68	
						1		
7	16.30	15.17	15.12	11.41	5.50	1.60	39.62	.24
	26.08	24.27	24.19	18.25	8.80	1.65	37.74	.23
	FRAGMENT	17.27		SIEVED	6.54ROCK	PERCENT	52.33	
						1		
11	23.22	18.49	14.43	9.70	6.72	1.64	38.11	.32
	38.08	30.32	23.66	15.90	11.02	1.71	35.47	.28
	FRAGMENT	15.46		SIEVED	9.05ROCK	PERCENT	43.99	
						1		
21	18.95	17.05	11.98	8.62	6.28	1.65	37.74	
	31.26	28.13	19.76	14.22	10.36	1.77	33.21	—
	FRAGMENT	16.28		SIEVED	8.26ROCK	PERCENT	48.91	

1=FIST
2=CORE
3=LOOSE

HYATTSVILLE LOAM*(05,09,C,a)

Location: University of Maryland Research Farm, Prince Georges Co., Md.
Vegetation and land use: Cultivated field
Topography: Nearly level
Drainage: Well drained
Parent Material: Recently washed fine soil materials of the coastal plain deposited in old drainageways.
Described and sampled by: R. M. Kirby; G. P. Lawless and G. Schumaker

Horizon	Description
Ap	0 to 8 inches. Dark brown (10YR 4/3) loam; weak fine crumb structure; very friable when moist; nonsticky and nonplastic when wet; roots abundant; acid; abrupt smooth boundary; horizon is 8 inches thick.
C1	8 to 19 inches. Dark yellowish brown (10YR 4/4) loam; weak medium and coarse subangular blocky structure; very friable when moist; nonsticky and nonplastic when wet; few fine roots; acid; clear smooth boundary; horizon is 11 inches thick.
IIC2	19 to 24 inches. Dark yellowish brown (10YR 4/4) fine sandy loam; weak medium subangular blocky structure; friable when moist; nonsticky and nonplastic when wet; very few roots; strongly acid; gradual wavy boundary; horizon is 4 to 6 inches thick.
C3	24 to 30 inches. Yellowish brown (10YR 5/6) silt loam; weak fine and medium subangular blocky structure; friable when moist; nonsticky and slightly plastic when wet; few fine roots and some old root channels; acid; clear wavy boundary; some peds have thin discontinuous clay coats; horizon is 5 to 7 inches thick.
C4	30 to 41 inches. Yellowish brown (10YR 5/6) silty clay loam; moderate medium subangular blocky structure, with strong clay coats on peds; friable when moist; very slightly sticky and nonplastic when wet; very few roots; strongly acid; clear wavy boundary; horizon is 10 to 12 inches thick.
C5	41 to 49 inches. Yellowish brown (10YR 5/6) heavy silt loam; weak fine and medium subangular blocky structure; friable when moist; slightly sticky and slightly plastic when wet; no roots; strongly acid; gradual smooth boundary; horizon is 8 to 10 inches thick.
C6	49 to 60 inches plus. Yellowish brown (10YR 5/4) heavy sandy loam; weak fine subangular blocky structure; firm in place; very friable when moist; nonsticky and nonplastic when wet; very strongly acid.

*Ochlockonee silt loam, local alluvium (1967 correlation).

HYATTSVILLE LOAM (05,09,C,a)

```
        WEIGHT  PERCENT  AND  VOLUME  PERCENT  OF  WATER  RETAINED

IDENTIFICATION        T E N S I O N S  (BARS)
                                                                 BD        TP       K
 5   9   2   1     .1        .3        .6        3.        15.        G/CC      PCT     IN/HR

     DEPTH                                                             1
      0            24.55     23.30     17.56     14.53     6.21       1.53     42.26     .37
                   37.56     35.64     26.86     22.23     9.50       1.58     40.38     .51
                   FRAGMENT  21.28                SIEVED    5.83ROCK  PERCENT   1.71
                                                                       1
      8            27.38     23.63     18.75     14.46     7.08       1.41     46.79     .43
                   38.60     33.31     26.43     20.38     9.98       1.46     44.91     .37
                   FRAGMENT  21.38                SIEVED    5.98ROCK  PERCENT   2.12
                                                                       1
     19            24.42     23.64     18.81     16.66     9.25       1.43     46.04     .46
                   34.92     33.80     26.89     23.82    13.22       1.48     44.15     .28
                   FRAGMENT  20.92                SIEVED    8.83ROCK  PERCENT    .34
                                                                       1
     24            27.10     23.57     19.90     17.04    10.95       1.48     44.15     .38
                   40.10     34.88     29.45     25.21    16.20       1.58     40.38     .33
                   FRAGMENT  22.26                SIEVED   10.04ROCK  PERCENT   2.55
                                                                       1
     30            29.26     25.99     20.68     17.64    11.99       1.34     49.43     .07
                   39.20     34.82     27.71     23.63    16.06       1.35     49.06     .61
                   FRAGMENT  22.64                SIEVED   10.57ROCK  PERCENT   3.04

      1=FIST
      2=CORE
      3=LOOSE
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HYATTSVILLE LOAM (05,09,C,b)

Location: University of Maryland Research Farm, Prince Georges Co., Md.
Vegetation and land use: Cultivated field
Topography: Nearly level
Drainage: Well drained
Parent Material: Recently washed fine soil materials of the coastal plain deposited in old drainageways.
Described and sampled by: R. M. Kirby; G. P. Lawless and G. Schumaker

Horizon	Description
Ap	0 to 8 inches. Dark brown (10YR 4/3) loam; weak fine crumb structure; very friable when moist; nonsticky and nonplastic when wet; roots abundant; acid; abrupt smooth boundary; horizon is 8 inches thick.
C1	8 to 18 inches. Dark yellowish brown (10YR 4/4) loam; weak medium and coarse subangular blocky structure; very friable when moist; nonsticky and nonplastic when wet; roots abundant; strongly acid; clear smooth boundary; horizon is 9 to 11 inches thick.
IIC2	18 to 23 inches. Dark yellowish brown (10YR 4/4) fine sandy loam; weak medium subangular blocky structure; friable when moist; nonsticky and nonplastic when wet; few fine roots and some old roots and many old root channels; strongly acid; clear smooth boundary; horizon is 5 to 6 inches thick.
C3	23 to 28 inches. Yellowish brown (10YR 5/6) silt loam; weak fine and medium subangular blocky structure; friable when moist; nonsticky and slightly plastic when wet; few roots; some root channels; strongly acid; clear smooth boundary; horizon is 5 to 6 inches thick.
C4	28 to 41 inches. Yellowish brown (10YR 5/6) silty clay; moderate medium subangular blocky structure; firm when moist; sticky and plastic when wet; strong continuous clay coats; no roots but some old root channels; strongly acid; clear smooth boundary; horizon is 12 to 14 inches thick.
C5	41 to 49 inches. Yellowish brown (10YR 5/4) silt loam; weak fine and medium subangular blocky structure; friable when moist; slightly sticky and slightly plastic when wet; no roots; strongly acid; gradual smooth boundary; horizon is 8 to 10 inches thick.
C6	49 to 60 inches plus. Yellowish brown (10YR 5/4) sandy loam; weak fine subangular blocky structure; very friable when moist; nonsticky and nonplastic when wet; very strongly acid.

HYATTSVILLE LOAM (05,09,C,b)

```
      WEIGHT  PERCENT  AND  VOLUME  PERCENT  OF  WATER  RETAINED

IDENTIFICATION        T E N S I O N S  (BARS)
                                                                BD       TP        K
 5   9   2   2      .1        .3        .6        3.        15.      G/CC      PCT     IN/HR

     DEPTH                                                          1
      0            25.00     22.38     16.06     11.84      7.10     1.56     41.13     .17
                   39.00     34.91     25.05     18.47     11.07     1.60     39.62     .02
                   FRAGMENT  20.01                SIEVED    6.83ROCK PERCENT   3.68
                                                                    1
      8            27.45     23.21     16.31     11.36      5.51     1.46     44.91     .61
                   40.07     33.88     23.81     16.58      8.04     1.46     44.91     .08
                   FRAGMENT  20.13                SIEVED    5.29ROCK PERCENT   3.38
                                                                    1
     18            19.31     14.97     11.56      8.94      4.29     1.59     40.00    1.08
                   30.70     23.80     18.38     14.21      6.82     1.63     38.49     .28
                   FRAGMENT  12.59                SIEVED    4.26ROCK PERCENT    .48
                                                                    1
     23            33.55     28.73     22.22     17.94     11.35     1.40     47.17     .21
                   46.97     40.22     31.10     25.11     15.89     1.47     44.53     .06
                   FRAGMENT  26.12                SIEVED    9.69ROCK PERCENT    .58
                                                                    1
     28            29.38     25.94     24.38     20.31     10.66     1.39     47.55     .17
                   40.83     36.05     33.88     28.23     14.81     1.44     45.66     .26
                   FRAGMENT  23.21                SIEVED   11.46ROCK PERCENT   2.05
                                                                    1
     41            24.62     16.83     14.00     12.75      8.24     1.52     42.64     .02
                   37.42     25.58     21.28     19.38     12.52     1.64     38.11     .10
                   FRAGMENT  16.20                SIEVED    7.47ROCK PERCENT    .25

      1=FIST
      2=CORE
      3=LOOSE
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LEONARDTOWN SILT LOAM (05,11,P,a)

Location: University of Maryland Research Farm, Montgomery Co., Md.
Vegetation and land use: Pasture
Topography: Nearly level
Drainage: Poor to somewhat poorly drained
Parent Material: Silty to somewhat sandy loessial materials over strongly weathered sandy and gravelly outwash deposits of the coastal plain.
Described and Sampled by: R. M. Kirby; G. P. Lawless and G. Schumaker

Horizon	Description
Ap	0 to 7 inches. Yellowish brown (10YR 5/4) silt loam; weak fine granular structure; very friable when moist; nonsticky and nonplastic when wet; roots abundant; slightly acid; abrupt smooth boundary; horizon is 7 inches thick.
A2	7 to 10 inches. Pale yellow (2.5Y 7/4) silt loam with few mottles of yellowish brown (10YR 6/8); weak fine subangular blocky structure; friable when moist; nonsticky and nonplastic when wet; acid; clear smooth boundary; horizon is 2 to 4 inches thick.
B1	10 to 17 inches. Pale yellow (2.5Y 7/4) heavy silt loam with common medium faint mottles of light gray (2.5Y 7/0); weak medium subangular blocky structure; friable when moist; very slightly sticky and very slightly plastic when wet; extremely acid; abrupt wavy boundary; horizon is 7 to 8 inches thick.
B2t	17 to 24 inches. Olive yellow (2.5Y 6/6) heavy silt loam to silty clay loam with common, medium prominent mottles of white (5YR 8/1) and reddish brown (5YR 5/3); weak medium subangular blocky structure; very few roots; firm when moist; sticky and plastic when wet; extremely acid; abrupt smooth boundary; horizon is 7 to 8 inches thick.
Bx1	24 to 31 inches. Light gray (2.5Y 7/2) heavy silty clay loam with common medium and fine prominent light yellowish brown (10YR 6/4) mottles; moderate medium platy structure; very brittle when moist; very sticky and very plastic when wet; few small dark red feruginous concretions; some small gravels; some prominent clay coatings on vertical faces of peds; no roots; extremely acid; abrupt wavy boundary; horizon is 7 to 8 inches thick.
Bx2	31 to 39 inches plus. Light gray (2.5Y 7/2) silty clay loam with common medium prominent mottles of light yellowish brown (10YR 6/4); massive in place; medium and coarse platy structure; firm and brittle when moist; sticky and plastic when wet; some small gravels; no roots; extremely acid.

LEONARDTOWN SILT LOAM (05,11,P,a)

```
     WEIGHT  PERCENT  AND  VOLUME  PERCENT  OF  WATER  RETAINED

IDENTIFICATION        T E N S I O N S  (BARS)
                                                                      BD        TP        K
 5  11   1   1     .1        .3        .6        3.        15.      G/CC      PCT     IN/HR

    DEPTH                                                               1
     0             32.74     27.19     23.68     20.89      8.41      1.38     47.92      .08
                   45.18     37.52     32.67     28.82     11.60      1.42     46.42      .15
                   FRAGMENT  26.21                 SIEVED   6.21ROCK  PERCENT
                                                                        1
     7             41.51     29.38     24.21     21.42      7.89      1.40     47.17      .13
                   58.11     41.13     33.89     29.98     11.04      1.45     45.28      .08
                   FRAGMENT  27.87                 SIEVED   6.95ROCK  PERCENT
                                                                        1
    10             43.02     31.40     27.86     23.58      8.93      1.33     49.81      .07
                   57.21     41.76     37.05     31.36     11.87      1.36     48.68      .06
                   FRAGMENT  28.32                 SIEVED   8.36ROCK  PERCENT   2.70
                                                                        1
    17             41.22     29.74     26.19     21.82     11.46      1.28     51.70      .12
                   52.76     38.06     33.52     27.92     14.66      1.34     49.43      .09
                   FRAGMENT  28.00                 SIEVED  13.68ROCK  PERCENT  14.27
                                                                        1
    24             32.42     18.96     16.85     16.16      9.59      1.52     42.64      .07
                   49.27     28.81     25.61     24.56     14.57      1.58     40.38      .08
                   FRAGMENT  16.72                 SIEVED   8.74ROCK  PERCENT   2.70
                                                                        1
    31             30.18     19.48     17.86     15.20      9.88      1.53     42.26      .05
                   46.17     29.80     27.32     23.25     15.11      1.59     40.00      .06
                   FRAGMENT  18.84                 SIEVED   9.68ROCK  PERCENT   5.70

      1=FIST
      2=CORE
      3=LOOSE
```

LEONARDTOWN SILT LOAM (05,11,P,b)

Location: University of Maryland Research Farm, Montgomery Co., Md.
Vegetation and land use: Pasture
Topography: Nearly level
Drainage: Poorly to somewhat poorly drained
Parent Material: Silty to somewhat sandy loessial materials over strongly weathered sandy and gravelly outwash deposits of the coastal plain.
Described and sampled by: R. M. Kirby; G. P. Lawless and G. Schumaker

Horizon	Description
Ap	0 to 7 inches. Yellowish brown (10YR 5/4) silt loam; weak fine granular structure; very friable when moist; nonsticky and slightly plastic when wet; roots abundant; slightly acid; abrupt smooth boundary; horizon is 7 inches thick.
Ab	7 to 11 inches. Pale yellow (2.5Y 7/4) silt loam with few mottles of yellowish red (5YR 5/6); moderate fine and medium subangular blocky and fine platy structure; friable when moist; slightly sticky and slightly plastic when wet; few fine roots; acid; abrupt smooth boundary; horizon is 3 to 5 inches thick.
B21t	11 to 14 inches. Light yellowish brown (2.5Y 6/4) heavy silt loam with common fine faint mottles of white (2.5Y 8/0) and light gray (2.5Y 7/2); moderate medium subangular blocky structure; friable when moist; slightly sticky and very slightly plastic when wet; few roots; acid; clear wavy boundary; horizon is 3 to 5 inches thick.
B22t	14 to 19 inches. Light gray (2.5Y 7/2) silty clay loam with many medium faint mottles of light yellowish brown (2.5Y 6/4); moderate, medium subangular blocky structure with large white (2.5Y 8/0) clay flows between some peds; very firm when moist; very sticky and very plastic when wet; extremely acid; no roots; abrupt smooth boundary; horizon is 5 to 6 inches thick.
Bx1	19 to 26 inches. Light gray (2.5Y 7/2) silty clay loam with common medium and fine prominent light yellowish brown (10YR 6/4) mottles; weak fine and medium platy and weak medium subangular blocky structure; very compact in place; firm and brittle when moist; very sticky and very plastic when wet; few small dark red iron concretions; discontinuous thin clay coats on ped faces; extremely acid; no roots; abrupt wavy boundary; horizon is 7 to 8 inches thick.
Bx2	26 to 41 inches. Light gray (2.5Y 7/2) heavy silty clay loam with common medium and fine prominent mottles of light yellowish brown (10YR 6/4); medium to coarse platy structure breaks out from massive material; brittle and firm when moist; very plastic and very sticky when wet; extremely acid; no roots; some small gravels; very few discontinuous clay coats; few small iron concretions.

COLLEGE PARK, MARYLAND

LEONARDTOWN SILT LOAM (05,11,P,b)

WEIGHT PERCENT AND VOLUME PERCENT OF WATER RETAINED

IDENTIFICATION	TENSIONS (BARS)					BD	TP	K
5 11 1 2	.1	.3	.6	3.	15.	G/CC	PCT	IN/HR
DEPTH						1		
0	39.26	26.42	22.50	18.04	9.02	1.28	51.70	.17
	50.25	33.81	28.80	23.09	11.54	1.32	50.19	.48
	FRAGMENT	25.29		SIEVED	6.53ROCK	PERCENT		
						1		
7	36.47	25.17	22.34	18.97	7.14	1.51	43.02	.09
	55.06	38.00	33.73	28.64	10.78	1.53	42.26	.07
	FRAGMENT	23.88		SIEVED	6.40ROCK	PERCENT		
						1		
11	39.38	28.68	26.01	21.17	9.65	1.46	44.91	.07
	57.49	41.87	37.97	30.90	14.08	1.56	41.13	.10
	FRAGMENT	26.83		SIEVED	9.00ROCK	PERCENT	11.96	
						1		
14	43.06	28.08	25.85	19.92	13.17	1.45	45.28	.06
	62.43	40.71	37.48	28.88	19.09	1.52	42.64	.08
	FRAGMENT	26.93		SIEVED	12.14ROCK	PERCENT	6.51	
						1		
19	25.19	21.40	19.15	14.49	10.40	1.44	45.66	.39
	36.27	30.81	27.57	20.86	14.97	1.57	40.75	.06
	FRAGMENT	19.79		SIEVED	9.70ROCK	PERCENT	5.12	
						1		
26	29.72	18.55	17.78	14.88	5.63	1.33	49.81	.02
	39.52	24.67	23.64	19.79	7.48	1.38	47.92	.06
	FRAGMENT	16.20		SIEVED	7.62ROCK	PERCENT	3.46	

1=FIST
2=CORE
3=LOOSE

SASSAFRAS SANDY LOAM (05,13,C,a and b)

Location: University of Maryland Research Farm, Prince Georges Co., Md.
Vegetation and land use: Cultivated
Topography: Gently sloping; pit b, eroded.
Drainage: Well drained
Parent Material: Thick beds of clayey and silty unconsolidated sediments of the Pleistocene.
Described and sampled by: R. M. Kirby; G. P. Lawless and G. Schumaker

Horizon	Description
Pit a	
Ap	0 to 8 inches. Dark yellowish brown (10YR 4/4) sandy loam; weak fine to medium crumb structure; very friable when moist; nonsticky and nonplastic when wet; roots abundant; strongly acid; clear smooth boundary; horizon is 10 inches thick.
Ap-A2	8 to 10 inches. This horizon same as one above except color; yellowish brown (10YR 5/6).
B1	10 to 14 inches. Strong brown (7.5YR 5/6) loam; moderate fine to medium subangular blocky structure; friable when moist; slightly sticky and very slightly plastic when wet; roots common to plentiful; strongly acid; gradual wavy boundary; horizon is 3 to 4 inches thick.
B2t	14 to 25 inches. Strong brown (7.5YR 5/6) fine sandy clay loam; moderate medium to coarse subangular blocky structure; firm when moist; sticky and moderately plastic when wet; many roots; prominent almost continuous clay coats; strongly acid; gradual wavy boundary; horizon is 10 to 12 inches thick.
B3	25 to 34 inches. Strong brown (7.5YR 5/6) sandy loam; moderate medium subangular blocky structure; friable when moist; nonsticky and nonplastic when wet; few roots; few discontinuous clay coats; very strongly acid; gradual irregular boundary; horizon is 8 to 12 inches thick.
C1	34 to 60 inches plus. Yellowish red (5YR 4/6) sand; structureless but slightly firm in place; lenses of medium quartz gravels in upper part of horizon; loose when moist; no roots; very strongly acid.
Pit b	
Ap	0 to 10 inches. Dark yellowish brown (10YR 4/4) sandy loam; weak fine to medium crumb structure; very friable when moist; nonsticky and nonplastic when wet; roots abundant; strongly acid; clear smooth boundary; horizon is 10 inches thick.
B1	10 to 12 inches. Strong brown (7.5YR 5/6) loam; moderate fine subangular blocky structure; friable when moist; slightly sticky and very slightly plastic when wet; roots common; strongly acid; clear wavy boundary; horizon is 1 to 3 inches thick.
B2t	12 to 21 inches. Reddish yellow (7.5YR 6/8) sandy clay loam; moderate medium to coarse subangular blocky structure; firm when moist; sticky and moderately plastic when wet; few fine roots; almost continuous clay coats; strongly acid; gradual wavy boundary; horizon is 9 to 12 inches thick.
B3	21 to 31 inches. Reddish yellow (7.5YR 6/8) heavy sandy loam to light sandy clay loam; moderate medium and coarse subangular blocky structure; slightly firm when moist; slightly sticky and slightly plastic when wet; few roots; few discontinuous clay coats; very strongly acid; gradual irregular boundary; horizon is 9 to 12 inches thick.
C1	31 to 60 inches plus. Yellowish red (5YR 4/6) sand; structureless but slightly firm in place; loose when moist; no roots; very strongly acid.

COLLEGE PARK, MARYLAND

SASSAFRAS SANDY LOAM (05,13,C,a and b)

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     WEIGHT  PERCENT  AND  VOLUME  PERCENT  OF  WATER  RETAINED

IDENTIFICATION         T E N S I O N S  (BARS)
                                                             BD        TP        K
 5  13   2   1     .1        .3        .6        3.        15.       G/CC      PCT     IN/HR

    DEPTH                                                            1
     0             21.25     15.21     14.39      9.40     2.20      1.76      33.58      .71
                   37.40     26.76     25.32     16.54     3.87      1.80      32.08      .96
                   FRAGMENT  14.45                SIEVED   4.09ROCK  PERCENT   16.92
                                                                     3
    10             27.07     21.90     17.96     11.19     1.70      1.24      53.21
                   33.56     27.15     22.27     13.87     2.10
                   FRAGMENT                       SIEVED   5.15ROCK  PERCENT    2.09
                                                                     1
    14             22.11     18.63     14.43      9.37     1.24      1.59      40.00     1.16
                   35.15     29.62     22.94     14.89     1.97      1.63      38.49      .48
                   FRAGMENT  18.48                SIEVED   4.08ROCK  PERCENT   14.81
                                                                     1
    25             25.32     22.60     17.16     11.34     1.71      1.55      41.51      .37
                   39.24     35.03     26.59     17.57     2.65      1.58      40.38      .61
                   FRAGMENT  20.44                SIEVED   8.37ROCK  PERCENT    1.95
                                                                     3
    34              6.91      4.72      3.72      2.26      .56      1.57      40.75
                   10.84      7.41      5.84      3.54      .87
                   FRAGMENT                       SIEVED   3.04ROCK  PERCENT    4.11

IDENTIFICATION         T E N S I O N S  (BARS)
                                                             BD        TP        K
 5  13   2   2     .1        .3        .6        3.        15.       G/CC      PCT     IN/HR

    DEPTH                                                            1
     0             20.14     16.96     13.37     10.28     5.47      1.65      37.74      .55
                   33.23     27.98     22.06     16.96     9.02      1.67      36.98      .25
                   FRAGMENT  15.47                SIEVED   5.45ROCK  PERCENT    1.40
                                                                     1
    10             22.10     17.36     13.76      9.91     5.67      1.61      39.25      .10
                   35.58     27.94     22.15     15.95     9.12      1.66      37.36      .26
                   FRAGMENT  17.13                SIEVED   8.08ROCK  PERCENT    2.33
                                                                     1
    12             24.00     18.55     16.44     13.43     7.55      1.60      39.62      .19
                   38.40     29.68     26.30     21.48    12.08      1.65      37.74      .57
                   FRAGMENT  16.90                SIEVED   8.38ROCK  PERCENT
                                                                     1
    21             14.14     11.93     10.73      9.99     2.35      1.66      37.36      .23
                   23.47     19.80     17.81     16.58     3.90      1.70      35.85      .24
                   FRAGMENT  13.73                SIEVED   6.10ROCK  PERCENT
                                                        ( 7.54)      1
    31             10.89      8.65      8.14      6.22     1.63      1.64      38.11     3.16
                   17.85     14.18     13.34     10.20     2.67      1.67      36.98     1.37
                   FRAGMENT   8.17                SIEVED   4.43ROCK  PERCENT


     1=FIST
     2=CORE
     3=LOOSE
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VAUCLUSE SANDY LOAM (09,01,C,a)

Location: 1/2 mi. N. of Shiloh Church on paved road fronting the Church, then about 150 yds. N., N. W. Sumter Co., Ga.
Vegetation and land use: Broom sedge and dog fennel
Topography: Gently sloping (8%)
Drainage: Well to moderate
Parent Material: Medium textured marine sediments of sandy clay loam
Described and sampled by: J. A. Pilkinton, E. H. Smith, G. P. Lawless

Horizon	Description
Ap	0 to 6 inches. Dark brown (10YR 4/3) sandy loam with weak fine granular structure; very friable; fine roots common; strongly acid; clear wavy boundary.
B21t	6 to 10 inches. Yellowish brown (10YR 5/8) sandy clay loam with weak fine subangular blocky structure; friable; horizontal streaks and isolated pockets of sandy clay that is sticky when wet; few fine roots; very strongly acid; gradual wavy boundary.
B22t	10 to 27 inches. Yellowish red (5YR 5/8) coarse sandy loam with common fine and medium distinct mottles of yellowish brown and very pale brown; weak medium subangular blocky structure; compact and brittle, hard when dry; vertical streaks of sandy clay that is sticky when wet; few fine streaks of white kaolin; few fine roots; very strongly acid; clear irregular boundary.
IIB23t*	27 to 37 inches. Mottled red (10R 4/8), yellow brown (10YR 5/6) and white (10YR 8/2) clay with strong medium to coarse subangular blocky structure; continuous and discontinuous clay skins on ped faces; firm when moist, sticky and plastic when wet; very few fine roots going down ped faces; very strongly acid; clear irregular boundary.
IICt	37 inches plus. Yellowish red (5YR 5/8) loamy sand with streaks and balls of white kaolin; massive slightly compact and very brittle, hard when dry; very strongly acid.

*Horizon of least permeability.

Remarks: Colors are given for moist soil; reaction determined by Soiltex.

AMERICUS, GEORGIA

VAUCLUSE SANDY LOAM (09,01,C,a)

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      WEIGHT  PERCENT  AND  VOLUME  PERCENT  OF  WATER  RETAINED

IDENTIFICATION        T E N S I O N S  (BARS)
                                                                  BD        TP       K
 9   1   2   1     .1       .3        .6        3.        15.     G/CC      PCT    IN/HR

    DEPTH                                                             1
     0             9.43     6.75      5.78      4.76      3.56     1.75     33.96   15.08
                  16.50    11.81     10.11      8.33      6.23     1.77     33.21    2.94
                  FRAGMENT  5.80               SIEVED     3.20ROCK PERCENT   2.75
                                                                      1
     6            19.51    14.69     13.94     12.93      9.04     1.77     33.21    1.34
                  34.53    26.00     24.67     22.88     16.00     1.82     31.32     .83
                  FRAGMENT 13.60               SIEVED     7.60ROCK PERCENT   2.27
                                                                      1
    10            10.84     9.19      8.36      7.35      6.35     1.76     33.58     .68
                  19.07    16.17     14.71     12.93     11.17     1.80     32.08     .70
                  FRAGMENT  7.11               SIEVED     7.15ROCK PERCENT
                                                                      1
    27            19.90    18.22     16.99     15.38      9.79     1.57     40.75     .09
                  31.24    28.60     26.67     24.14     15.37     1.66     37.36      0
                  FRAGMENT 15.74               SIEVED     8.82ROCK PERCENT
                                                                      1
    37             9.61     7.14      6.82      6.13      4.82     1.78     32.83    4.15
                  17.10    12.70     12.13     10.91      8.57     1.81     31.70    1.16
                  FRAGMENT  6.94               SIEVED     4.83ROCK PERCENT

      1=FIST
      2=CORE
      3=LOOSE
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VAUCLUSE SANDY LOAM (09,01,C,b)

Location: 1/2 mi. N. of Shiloh Church on paved road fronting the Church, then about 150 yds. N., N. W. Sumter Co., Ga.
Vegetation and land use: Broom sedge and dog fennel
Topography: Gently sloping (8%)
Drainage: Well to moderate
Parent Material: Medium textured marine sediments of sandy clay loam
Described and sampled by: J. A. Pilkinton, E. H. Smith, G. P. Lawless

Horizon	Description
Ap	0 to 7 inches. Dark yellowish brown (10YR 4/4) sandy loam with weak fine granular structure; very friable; fine roots common; strongly acid; clear wavy boundary.
B21t	7 to 11 inches. Yellowish brown (10YR 5/8) sandy clay loam with weak fine subangular blocky structure; friable; horizontal streaks and isolated pockets of sandy clay that is sticky when wet; few fine roots; very strongly acid; gradual irregular boundary.
B22t	11 to 26 inches. Strong brown (7.5YR 5/8) sandy clay loam with common medium distinct mottles of yellowish brown and very pale brown; weak fine subangular blocky structure; slightly compact and brittle, hard when dry; vertical streaks of sandy clay that is sticky when wet; few fine roots; very strongly acid; gradual broken boundary.
B23t	26 to 35 inches. Red (2.5YR 4/8) sandy clay loam mottled with vertical and horizontal streaks of strong brown and yellowish red; weak medium subangular blocky structure; compact and brittle, hard when dry; few coarse sand grains; few fine roots; very strongly acid; clear irregular boundary.
IIB24t*	35 to 45 inches. Mottled red (2.5YR 4/6); yellowish brown (10YR 5/8) and very pale brown (10YR 8/3) clay with strong medium to coarse subangular blocky structure; continuous and discontinuous clay skins on ped faces; firm when moist, sticky and plastic when wet; very few fine roots going down ped faces; very strongly acid; clear wavy boundary.
IICt	45 inches plus. Strong brown (7.5YR 5/6) sandy loam mottled with horizontal and vertical streaks of red (2.5YR 4/6); massive slightly compact and very brittle, hard when dry; few streaks and balls of kaolin; very strongly acid.

*Horizon of least permeability.

Remarks: Colors are given for moist soil; reaction determined by Soiltex.

VAUCLUSE SANDY LOAM (09,01,C,b)

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     WEIGHT  PERCENT  AND  VOLUME  PERCENT  OF  WATER  RETAINED

IDENTIFICATION        T E N S I O N S  (BARS)
                                                              BD       TP        K
 9   1   2   2     .1        .3        .6        3.        15.      G/CC      PCT     IN/HR

    DEPTH                                                          1
     0            13.63     11.00     10.17      8.95      7.20     1.68     36.60     9.97
                  22.89     18.48     17.08     15.03     12.09     1.71     35.47     8.26
                  FRAGMENT   8.18                SIEVED   6.08ROCK PERCENT    .34
                                                                   1
     7            16.45     14.05     13.79     11.81     10.63     1.74     34.34      .53
                  28.62     24.44     23.99     20.54     18.49     1.81     31.70      .24
                  FRAGMENT  16.64                SIEVED  10.18ROCK PERCENT   3.89
                                                                   1
    11            11.98     10.83     10.63      9.10      8.80     1.72     35.09     1.74
                  20.60     18.62     18.28     15.65     15.13     1.74     34.34     1.93
                  FRAGMENT  11.61                SIEVED   8.98ROCK PERCENT   1.44
                                                                   1
    26            11.78     10.83      8.09      7.53      6.05     1.75     33.96      .36
                  20.61     18.95     14.15     13.17     10.58     1.79     32.45      .34
                  FRAGMENT   8.43                SIEVED   6.48ROCK PERCENT    .72
                                                                   1
    35            21.11     17.67     15.89     14.19     12.73     1.68     36.60      .54
                  35.46     29.68     26.69     23.83     21.38     1.83     30.94      .17
                  FRAGMENT  19.66                SIEVED  21.20ROCK PERCENT
                                                                   1
    45            11.19      8.26      7.38      6.34      5.50     1.74     34.34     1.17
                  19.47     14.37     12.84     11.03      9.57     1.79     32.45     1.05
                  FRAGMENT   7.34                SIEVED   5.43ROCK PERCENT    .30

     1=FIST
     2=CORE
     3=LOOSE
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GREENVILLE LOAM (09,02,C,a and b)

Location: 1.4 mi. N on Ga. 30 after passing intersection of Ga. 30 and 153; first dirt road on right 0.3 mi. from Ga. 30 (300 yds. left of road in open pasture); Schley Co.
Vegetation and land use: Common bermuda grass and bitterweeds
Topography: Level (0-2%)
Drainage: Well drained
Parent Material: Sandy clays and clayey marine sediments
Described and sampled by: J. A. Pilkinton, E. H. Smith, G. P. Lawless

Horizon	Description
Pit a	
Ap	0 to 5 inches. Dark reddish brown (5YR 3/4) loam with weak fine to medium granular structure; very friable when moist, slightly sticky when wet; fine roots abundant; few earthworms and worm holes; many fine pores and old root holes; strongly acid; clear wavy boundary (wavy boundary created by plowing).
B21t	5 to 18 inches. Dark reddish brown (2.5YR 3/4) sandy clay with moderate fine subangular blocky structure; few thin patchy clay skins in old root holes; friable when moist, slightly sticky and slightly plastic when wet; some old root and worm holes filled with material from the Ap horizon; fine roots common; many fine pores; many fine old root and worm holes; very strongly acid; gradual wavy boundary.
B22t	18 to 50 inches. Dark red (2.5YR 3/6) sandy clay with moderate medium subangular blocky structure and a few thin patchy clay skins on some ped faces; friable when moist, sticky and plastic when wet; few thin patchy clay skins in some old root holes; few fine roots; few fine pores in top portion of horizon; few fine old root holes; very strongly acid; gradual wavy boundary.
B23t	50 to 70 inches plus. Dark red (2.5YR 3/6) sandy clay with weak fine subangular blocky structure; friable (slightly more friable than the B22t) when moist, slightly sticky when wet; few patchy clay skins in some old root holes; few fine old root holes; very few fine roots; very strongly acid.
Pit b	
Ap	0 to 7 inches. Dark reddish brown (5YR 3/4) loam; weak fine to medium granular structure; very friable; many fine roots; few fine root and worm holes; medium to strongly acid; clear smooth boundary.
B21t	7 to 22 inches. Dark reddish brown (2.5YR 3/4) sandy clay; moderate fine subangular blocky structure; friable when moist, slightly sticky and slightly plastic when wet; many fine roots; few fine pores and worm holes; some old root and worm holes filled with material from the Ap horizon; few thin discontinuous clay skins along root holes; strongly to very strongly acid; gradual wavy boundary.
B22t	22 to 57 inches. Dark red (2.5YR 3/6) sandy clay; moderate medium subangular blocky structure; friable when moist, sticky and slightly plastic when wet; few fine roots; few fine pores and old root holes; thin discontinuous clay skins on ped faces; few thin continuous clay skins on old root holes; strongly to very strongly acid; gradual wavy boundary.
B23t	57 to 72 inches plus. Dark red (2.5YR 3/6) sandy clay; weak fine and medium subangular blocky structure; friable (slightly more friable than B22t) when moist, slightly sticky when wet; few fine roots; few thin discontinuous clay skins in old root holes; strongly to very strongly acid.

Remarks: Color given is for moist soil; reaction determined by Soiltex.

GREENVILLE LOAM (09,02,C,a and b)

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     WEIGHT  PERCENT  AND  VOLUME  PERCENT  OF  WATER  RETAINED

IDENTIFICATION        T E N S I O N S  (BARS)
                                                               BD       TP       K
 9   2   2   1      .1        .3        .6        3.        15.       G/CC     PCT    IN/HR

    DEPTH                                                         1
     0              19.61     15.11     14.89     10.15      7.76     1.63     38.49     .89
                    31.96     24.62     24.27     16.54     12.64     1.70     35.85    2.65
                    FRAGMENT  18.86               SIEVED   7.17ROCK PERCENT    .92
                                                                      1
     5              20.53     17.17     15.54     13.93     12.54     1.59     40.00    1.26
                    32.64     27.30     24.70     22.14     19.93     1.65     37.74    3.05
                    FRAGMENT  17.80               SIEVED  11.54ROCK PERCENT
                                                                      1
    18              21.22     17.87     15.66     14.42     12.72     1.50     43.40    7.43
                    31.83     26.80     23.49     21.63     19.08     1.65     37.74    1.36
                    FRAGMENT  17.17               SIEVED  12.17ROCK PERCENT
                                                                      1
    50              20.46     17.32     15.73     14.08     12.87     1.69     36.23    2.17
                    34.57     29.27     26.58     23.79     21.75     1.73     34.72    1.51
                    FRAGMENT  17.73               SIEVED  12.80ROCK PERCENT    .17

IDENTIFICATION        T E N S I O N S  (BARS)
                                                               BD       TP       K
 9   2   2   2      .1        .3        .6        3.        15.       G/CC     PCT    IN/HR

    DEPTH                                                             1
     0              19.54     17.88     16.50     12.93      9.22     1.55     41.51    4.38
                    30.28     27.71     25.57     20.04     14.29     1.58     40.38    1.78
                    FRAGMENT  15.03               SIEVED   8.19ROCK PERCENT   2.81
                                                                      1
     7              18.35     15.75     15.64     13.46     12.82     1.55     41.51     .32
                    28.44     24.41     24.24     20.86     19.87     1.58     40.38     .70
                    FRAGMENT  16.00               SIEVED  11.38ROCK PERCENT
                                                                      1
    22              20.72     18.35     16.37     14.77     13.28     1.55     41.51    1.54
                    32.11     28.44     25.37     22.89     20.58     1.57     40.75    1.09
                    FRAGMENT  17.45               SIEVED  13.36ROCK PERCENT    .87
                                                                      1
    57              19.89     17.34     15.60     14.33     13.66     1.63     38.49     .77
                    32.42     28.26     25.42     23.35     22.26     1.64     38.11    2.29
                    FRAGMENT  16.35               SIEVED  13.56ROCK PERCENT   2.43

     1=FIST
     2=CORE
     3=LOOSE
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GREENVILLE SANDY LOAM (09,03,C,a and b)

Location: 1.4 mi. N on Ga. 30 after intersection of Ga. 30 and 153; first dirt road on right 0.4 mi. from Ga. 30 (200 yds. left of road in open pasture); Schley Co.
Vegetation and land use: Common bermuda grass and bitterweeds
Topography: Level (0-2%)
Drainage: Well drained
Parent Material: Sandy clays and clayey marine sediments
Described and sampled by: J. A. Pilkinton, E. H. Smith, R. G. Middleton, G. P. Lawless

Horizon	Description
Pit a	
Ap	0 to 6 inches. Dark reddish brown (5YR 3/4) sandy loam; weak fine granular structure; very friable; many fine roots and worm holes; medium to strongly acid; clear smooth boundary.
B21t	6 to 20 inches. Dark red (2.5YR 3/6) sandy clay loam; moderate fine subangular blocky structure; friable; slightly sticky; few fine and medium roots and worm holes; few fine pores; some mixing of Ap material in old root and worm channels; medium to strongly acid; gradual smooth boundary.
B22t	20 to 35 inches. Dark red (2.5YR 3/6) sandy clay; moderate fine and medium subangular blocky structure; friable; slightly sticky to sticky; few fine roots; few patchy clay skins on sand grains and ped faces; strongly to very strongly acid; gradual smooth boundary.
B23t	35 to 60 inches plus. Dark red (2.5YR 3/6) sandy clay; moderate fine and medium subangular blocky structure; friable; slightly sticky; few fine roots; few patchy clay skins on ped faces and sand grains; strongly to very strongly acid.
Pit b	
Remarks:	Colors given are for moist soil; reaction determined by Soiltex.
Ap	0 to 7 inches. Dark reddish brown (5YR 3/4) sandy loam; weak fine granular structure; very friable; many fine root and worm holes; medium to strongly acid; clear smooth boundary.
B21t	7 to 18 inches. Dark red (2.5YR 3/6) sandy clay loam; moderate fine subangular blocky structure; friable; slightly sticky; many fine roots and worm holes; few fine pores; some mixing of Ap material in root and worm channels; medium to strongly acid; gradual smooth boundary.
B22t	18 to 42 inches. Dark red (2.5YR 3/6) sandy clay; moderate medium subangular blocky structure; friable; sticky; few fine roots; few patchy discontinuous clay skins on ped faces and sand grains; strongly to very strongly acid; gradual smooth boundary.
B23t	42 to 60 inches plus. Dark red (2.5YR 3/6) sandy clay; moderate fine subangular blocky structure; friable; slightly sticky; few fine roots; few patchy discontinuous clay skins on ped faces and sand grains; strongly to very strongly acid.

Remarks: Colors given are for moist soil; reaction determined by Soiltex.

GREENVILLE SANDY LOAM (09,03,C,a and b)

```
        WEIGHT  PERCENT  AND  VOLUME  PERCENT  OF  WATER  RETAINED

IDENTIFICATION        T E N S I O N S  (BARS)
                                                              BD        TP       K
 9   3   2   1     .1        .3        .6        3.        15.      G/CC      PCT    IN/HR

    DEPTH                                                             1
     0            13.55      9.81      8.21      5.91      4.22     1.53     42.26    1.81
                  20.73     15.00     12.56      9.04      6.45     1.55     41.51    2.28
                  FRAGMENT  10.04               SIEVED   3.53ROCK PERCENT   3.89
                                                                      1
     6            15.75     13.81     12.43     10.58     10.00     1.67     36.98    4.21
                  26.30     23.06     20.75     17.66     16.70     1.68     36.60    1.62
                  FRAGMENT  12.52               SIEVED   8.92ROCK PERCENT   2.59
                                                                      1
    20            19.72     17.57     15.88     13.51     12.80     1.55     41.51    1.17
                  30.56     27.23     24.61     20.94     19.84     1.57     40.75     .41
                  FRAGMENT  15.50               SIEVED  11.58ROCK PERCENT
                                                                      1
    35            19.11     16.77     15.34     13.07     12.86     1.64     38.11     .59
                  31.34     27.50     25.15     21.43     21.09     1.67     36.98     .89
                  FRAGMENT  16.69               SIEVED  12.54ROCK PERCENT    .30


IDENTIFICATION        T E N S I O N S  (BARS)
                                                              BD        TP       K
 9   3   2   2     .1        .3        .6        3.        15.      G/CC      PCT    IN/HR

    DEPTH                                                             1
     0             9.61      7.69      6.39      5.78      3.65     1.60     39.62    3.06
                  15.37     12.30     10.22      9.24      5.84     1.63     38.49    2.40
                  FRAGMENT   8.33               SIEVED   5.44ROCK PERCENT    .53
                                                                      1
     7            14.01     12.32     10.20      9.81      8.68     1.68     36.60     .93
                  23.53     20.69     17.13     16.48     14.58     1.69     36.23     .16
                  FRAGMENT  12.77               SIEVED   9.64ROCK PERCENT    .34
                                                                      1
    18            16.66     14.10     13.33     10.46     10.97     1.65     37.74    2.70
                  27.48     23.26     21.99     17.25     18.10     1.67     36.98    2.95
                  FRAGMENT  14.73               SIEVED  12.11ROCK PERCENT   2.82
                                                                      1
    42            20.22     18.11     15.38     13.49     13.21     1.67     36.98     .60
                  33.76     30.24     25.68     22.52     22.06     1.67     36.98     .52
                  FRAGMENT  16.80               SIEVED  14.28ROCK PERCENT    .61

        1=FIST
        2=CORE
        3=LOOSE
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Local Alluvial Land (09,04,C,a and b)

Location: 1½ mi. N of Shiloh Church and about 50 yds. on right side of road; Sumter Co.
Vegetation and land use: Blackberry and broom sedge
Topography: Level (2%)
Drainage: Moderately well
Parent Material: Mixed local alluvial soil material overlying mixed marine sediments.
Described and sampled by: J. A. Pilkinton, E. H. Smith, G. P. Lawless

Horizon	Description
09,04,C,a	
1	0 to 20 inches. Predominantly dark grayish brown (2.5Y 4/2) loamy sand material stratified with narrow layers of light olive brown (2.5Y 5/4) loose sand; very friable; many fine and medium roots; strongly acid.
2	20 to 34 inches. Brownish yellow (10YR 6/6) massive sandy loam material, slightly mottled with strong brown and light gray; friable; few fine roots; very strongly acid.
3	34 to 42 inches. Browning-yellow (10YR 6/8) massive sandy clay loam material slightly mottled with light gray and highly mottled with strong brown, slightly compact; very strongly acid.
4*	42 inches plus. Mottled yellowish brown, yellowish red, and gray massive sandy clay that is plastic and dense.
09,04,C,b	
1	0 to 22 inches. Predominantly dark grayish brown (2.5Y 4/2) loamy sand material stratified with narrow layers of light olive brown (2.5Y 5/4) loose sand; very friable; many fine and medium roots; strongly acid.
2	22 to 34 inches. Brownish yellow (10YR 6/6) massive sandy clay loam material, slightly mottled with reddish yellow; friable; few fine roots; very strongly acid.
3*	34 inches plus. Brownish yellow (10YR 6/8) massive sandy clay material, slightly mottled with light gray and highly mottled with strong brown; compact and slightly plastic; few iron pebbles; very strongly acid.

*Layer of least permeability.

Remarks: Seasonal high water table at about 42 inches; pit started filling with water at this depth.

Colors given are for moist soil; reaction determined by Soiltex.

Local Alluvial Land (09,04,C,a and b)

```
        WEIGHT  PERCENT  AND  VOLUME  PERCENT  OF  WATER  RETAINED

IDENTIFICATION        T E N S I O N S  (BARS)
                                                                       BD       TP
 9   4   2   1     .1        .3        .6        3.        15.      G/CC      PCT

    DEPTH                                                             2
     0              9.93      6.84      5.55      4.54      3.10     1.46     44.91
                   14.49      9.98      8.10      6.62      4.52
                   FRAGMENT                        SIEVED   2.76ROCK PERCENT  1.40
                                                                      2
      20           12.64      9.92      7.39      5.68      5.22     1.53     42.26
                   19.33     15.17     11.30      8.69      7.98
                   FRAGMENT                        SIEVED   4.94ROCK PERCENT   .26
                                                                      3
      34           16.27     14.76     13.93      9.54      8.97     1.50     43.40
                   24.40     22.14     20.89     14.31     13.45
                   FRAGMENT                        SIEVED   7.29ROCK PERCENT   .63


IDENTIFICATION        T E N S I O N S  (BARS)
                                                                       BD       TP
 9   4   2   2     .1        .3        .6        3.        15.      G/CC      PCT

    DEPTH                                                             2
     0             10.71      7.48      6.51      4.50      3.66     1.54     41.89
                   16.49     11.51     10.02      6.93      5.63
                   FRAGMENT                        SIEVED   3.34ROCK PERCENT  3.39
                                                                      2
      22           13.84     11.11      9.00      8.21      6.26     1.64     38.11
                   22.69     18.22     14.76     13.46     10.26
                   FRAGMENT                        SIEVED   5.29ROCK PERCENT  2.72
                                                                      3
      34           21.00     19.21     18.72     18.14     11.42     1.32     50.19
                   27.72     25.35     24.71     23.94     15.07
                   FRAGMENT                        SIEVED  12.12ROCK PERCENT 14.37

       1=FIST
       2=CORE
       3=LOOSE
```

MARLBORO SANDY LOAM (09,05,C,a)

Location: N of Shiloh Church, NW Sumter Co.
Vegetation and land use: Crop residue (corn)
Topography: Very gently sloping (3%)
Drainage: Well drained
Parent Material: Clayey marine sediments
Described and sampled by: J. A. Pilkinton, E. H. Smith, G. P. Lawless

Horizon	Description
Ap	0 to 8 inches. Dark grayish brown (2.5Y 4/2) sandy loam with weak fine and medium granular structure; very friable; fine roots common; strongly acid; clear smooth boundary.
B1t	8 to 12 inches. Yellowish brown (10YR 5/6) sandy clay loam with weak fine subangular blocky structure; friable when moist and slightly sticky when wet; few fine roots; few fine pores and old root holes; very strongly acid; gradual wavy boundary.
B21t	12 to 26 inches. Yellowish brown (10YR 5/8) fine sandy clay with moderate medium subangular blocky structure; friable when moist, sticky and slightly plastic when wet; many thin discontinuous clay skins in old root holes and on the soil surrounding the very few small iron concretions; few fine roots; few fine pores and old root holes; very strongly acid; gradual wavy boundary.
B22t	26 to 46 inches. Yellowish brown (10YR 5/8) sandy clay with few fine yellowish red (5YR 5/8) mottles; moderate medium subangular blocky structure; friable to firm when moist and sticky when wet; few thin discontinuous clay skins in the old root holes and on the soil surrounding the very few small iron concretions; few fine roots; few fine pores and old root holes; very strongly acid; gradual wavy boundary.
B23t*	46 to 60 inches plus. Yellowish brown (10YR 5/8) sandy clay loam with common medium yellowish red (5YR 5/8) and pale yellow (2.5Y 7/4) mottles; moderate fine subangular blocky structure; hard when dry, firm when moist, slightly sticky when wet; few fine patchy clay skins on some ped surfaces, thin patchy clay skins on the soil surrounding the very few small iron concretions; very strongly acid.

*Horizon of least permeability.

Remarks: Colors given are for moist soil; reaction determined by Soiltex.

AMERICUS, GEORGIA

MARLBORO SANDY LOAM (09,05,C,a)

```
      WEIGHT  PERCENT  AND  VOLUME  PERCENT  OF  WATER  RETAINED

IDENTIFICATION        T E N S I O N S  (BARS)
                                                               BD        TP        K
 9    5    2    1     .1        .3        .6        3.        15.       G/CC      PCT     IN/HR

     DEPTH                                                                1
       0           10.98      9.79      8.39      6.66      4.32      1.74     34.34     2.79
                   19.10     17.03     14.59     11.58      7.51      1.75     33.96     2.73
                   FRAGMENT   8.90                 SIEVED   4.08ROCK PERCENT    .01
                                                                          1
       8           22.51     19.09     15.19     14.28     10.56      1.54     41.89     1.16
                   34.66     29.39     23.39     21.99     16.26      1.57     40.75     1.17
                   FRAGMENT  16.45                 SIEVED  11.14ROCK PERCENT  11.08
                                                                          1
      12           23.44     18.91     18.69     15.58     15.31      1.47     44.53     2.15
                   34.45     27.79     27.47     22.90     22.50      1.50     43.40     2.82
                   FRAGMENT  20.42                 SIEVED  13.98ROCK PERCENT   1.99
                                                                          1
      26           20.87     18.56     17.31     15.46     14.78      1.67     36.98      .68
                   34.85     30.99     28.90     25.81     24.68      1.68     36.60      .23
                   FRAGMENT  17.65                 SIEVED  13.43ROCK PERCENT   1.24
                                                                          1
      46           21.93     18.46     16.83     15.34     14.68      1.68     36.60      .36
                   36.84     31.01     28.27     25.77     24.66      1.68     36.60      .12
                   FRAGMENT  17.96                 SIEVED  13.90ROCK PERCENT   1.41

      1=FIST
      2=CORE
      3=LOOSE
```

MARLBORO SANDY LOAM (09,05,C,b)

Location: N of Shiloh Church, NW Sumter Co.
Vegetation and land use: Crop residue (corn)
Topography: Level (2%)
Drainage: Well drained
Parent Material: Clayey marine sediments
Described and sampled by: J. A. Pilkinton, E. H. Smith, G. P. Lawless

Horizon	Description
Ap	0 to 8 inches. Dark grayish brown (2.5Y 4/2) sandy loam with weak fine to medium granular structure; very friable; fine roots common; strongly acid; clear wavy boundary. (Wavy boundary due to plowing.)
B1t	8 to 12 inches. Yellowish brown (10YR 5/6) sandy clay loam with weak fine subangular structure; friable when moist and slightly sticky when wet; few fine roots; few fine pores and old root holes; very strongly acid; gradual wavy boundary.
B21t	12 to 28 inches. Yellowish brown (10YR 5/8) fine sandy clay with moderate medium subangular blocky structure; friable when moist; sticky and slightly plastic when wet; many thin discontinuous clay skins in old root holes and on the soil surrounding the very few small iron concretions; few fine roots; few fine pores and old root holes; very strongly acid; gradual wavy boundary.
B22t	28 to 45 inches. Yellowish brown (10YR 5/8) sandy clay with few fine yellowish red (5YR 5/8) mottles; moderate medium subangular blocky structure; friable to firm when moist; sticky when wet; few thin discontinuous clay skins in the old root holes and on the soil surrounding the very few small iron concretions; few fine roots; few fine pores and old root holes; very strongly acid; gradual wavy boundary.
B23t*	45 to 60 inches plus. Yellowish brown (10YR 5/8) sandy clay loam with common medium yellow red (5YR 5/8) and pale yellow (2.5Y 7/4) mottles; moderate fine subangular blocky structure; hard when dry, firm when moist, slightly sticky when wet; few thin patchy clay skins on some ped surfaces, thin patchy clay skins on the soil surrounding the very few small iron concretions; very strongly acid.

*Horizon of least permeability.

Remarks: Colors given are for moist soil; reaction determined by Soiltex.

MARLBORO SANDY LOAM (09,05,C,b)

```
      WEIGHT  PERCENT  AND  VOLUME  PERCENT  OF  WATER  RETAINED

IDENTIFICATION        T E N S I O N S  (BARS)
                                                                      BD        TP       K
 9    5    2    2      .1        .3        .6        3.        15.     G/CC      PCT    IN/HR

     DEPTH                                                                 1
      0                9.71      7.32      6.30      3.72      2.21      1.70     35.85    3.61
                      16.50     12.44     10.71      6.32      3.75      1.71     35.47    2.25
                      FRAGMENT   8.29                 SIEVED   2.82ROCK PERCENT     .36
                                                                           1
      8               13.79     11.30     10.65      8.82      7.27      1.55     41.51     .74
                      21.37     17.51     16.50     13.67     11.26      1.56     41.13    1.59
                      FRAGMENT  10.61                 SIEVED   8.38ROCK PERCENT    7.07
                                                                           1
     12               23.42     21.48     18.99     15.17     12.67      1.43     46.04     .21
                      33.49     30.71     27.15     21.69     18.11      1.47     44.53     .37
                      FRAGMENT  19.46                 SIEVED  13.87ROCK PERCENT   11.33
                                                                           1
     28               22.42     19.69     18.81     15.92     14.74      1.64     38.11     .68
                      36.76     32.29     30.84     26.10     24.17      1.65     37.74    3.48
                      FRAGMENT  18.44                 SIEVED  15.47ROCK PERCENT     .48
                                                                           1
     45               21.23     17.97     16.81     13.88     14.58      1.64     38.11     .40
                      34.81     29.47     27.56     22.76     23.91      1.65     37.74     .02
                      FRAGMENT  18.68                 SIEVED  13.47ROCK PERCENT    1.29

      1=FIST
      2=CORE
      3=LOOSE
```

ORANGEBURG SANDY LOAM (09,06,C,a and b)

Location: 1 mi. W on Ga. 153 from intersection of Ga. 45 and 153, SW Schley Co.
Vegetation and land use: Bahia grass and broom sedge
Topography: Gently sloping (7-8%)
Drainage: Well drained
Parent Material: Medium textured marine sediments of sandy clay loam
Described and sampled by: J. A. Pilkinton, E. H. Smith, G. P. Lawless

Horizon	Description
(Pit a)	
Ap	0 to 5 inches. Yellowish red (5YR 5/6) sandy loam; weak fine granular structure; very friable; many fine roots; medium to strongly acid; clear wavy boundary. (Surface color due to mixing Ap and B1t horizons through erosion.)
B1t	5 to 9 inches. Yellowish red (5YR 4/8) sandy clay loam; weak very fine subangular blocky structure; very friable when moist, slightly sticky when wet; many fine roots; medium to strongly acid; clear wavy boundary.
B21t	9 to 36 inches. Dark red (2.5YR 3/6) sandy clay loam; moderate medium subangular blocky structure; friable when moist, sticky when wet; few fine roots; few fine pores; strongly acid; gradual wavy boundary.
B22t	36 to 58 inches. Dark red (2.5YR 3/6) sandy clay loam; weak to moderate fine subangular blocky structure; friable to very friable when moist, sticky when wet; few fine roots; few small ironstone rocks; strongly to very strongly acid; gradual wavy boundary.
B23t	58 to 72 inches plus. Dark red (2.5YR 3/6) sandy clay loam; weak very fine subangular blocky structure; very friable when moist, slightly sticky when wet; few fine roots; few small ironstone rocks; strongly to very strongly acid; gradual wavy boundary.
(Pit b)	
Ap	0 to 6 inches. Dark brown (10YR 4/3) sandy loam; weak fine granular structure; very friable; many fine roots; medium to strongly acid; clear wavy boundary.
B1t	6 to 11 inches. Yellowish red (5YR 4/6) sandy clay loam; weak very fine subangular blocky structure; very friable when moist, slightly sticky when wet; many fine roots; strongly acid; clear wavy boundary.
B21t	11 to 56 inches. Dark red (2.5YR 3/6) sandy clay loam; moderate medium subangular blocky structure; friable when moist, sticky when wet; few fine roots; few fine pores; strongly to very strongly acid; gradual wavy boundary.
B22t	56 to 72 inches plus. Dark red (2.5YR 3/6) sandy clay loam; weak very fine subangular blocky structure; very friable when moist, slightly sticky when wet; few fine roots; strongly to very strongly acid.

Remarks: Colors given are for moist soil; reaction determined by Soiltex.

ORANGEBURG SANDY LOAM (09,06,C,a and b)

```
     WEIGHT  PERCENT  AND  VOLUME  PERCENT  OF  WATER  RETAINED

IDENTIFICATION        T E N S I O N S  (BARS)
                                                                BD       TP        K
 9   6   2   1      .1        .3        .6        3.        15.        G/CC     PCT     IN/HR

     DEPTH                                                               2
      0             7.76      5.99      5.24      3.86      3.51      1.51     43.02     9.85
                   11.71      9.04      7.91      5.82      5.30                         9.47
                   FRAGMENT                         SIEVED  3.91ROCK PERCENT  2.35
                                                                         2
      5             9.03      7.40      5.50      4.43      4.20      1.73     34.72
                   15.62     12.80      9.51      7.66      7.26
                   FRAGMENT                         SIEVED  4.33ROCK PERCENT  2.50
                                                                         1
      9            18.99     14.62     13.04     11.57     10.62      1.72     35.09     1.94
                   32.66     25.14     22.42     19.90     18.26      1.78     32.83     1.88
                   FRAGMENT 12.89                   SIEVED 10.76ROCK PERCENT  3.78
                                                                         1
     36            15.54     12.82     12.73     11.92     10.96      1.75     33.96     1.74
                   27.19     22.43     22.27     20.86     19.18      1.79     32.45     2.72
                   FRAGMENT 11.07                   SIEVED  9.23ROCK PERCENT   .54


IDENTIFICATION        T E N S I O N S  (BARS)
                                                                BD       TP        K
 9   6   2   2      .1        .3        .6        3.        15.        G/CC     PCT     IN/HR

     DEPTH                                                               2
      0            11.22      7.28      5.99      4.62      2.68      1.41     46.79
                   15.82     10.26      8.44      6.51      3.77
                   FRAGMENT                         SIEVED  3.13ROCK PERCENT  3.16
                                                                         2
      6            14.01      9.94      9.85      9.03      7.12      1.48     44.15
                   20.73     14.71     14.57     13.36     10.53
                   FRAGMENT                         SIEVED  6.52ROCK PERCENT  1.97
                                                                         1
     11            19.43     15.61     14.07     11.71     10.57      1.68     36.60     5.42
                   32.64     26.22     23.63     19.67     17.75      1.74     34.34     2.13
                   FRAGMENT 15.91                   SIEVED 11.84ROCK PERCENT  1.14
                                                                         3
     56            13.60     11.58     10.40     10.24      9.04      1.27     52.08
                   17.27     14.70     13.20     13.00     11.48
                   FRAGMENT                         SIEVED  9.39ROCK PERCENT  4.23

     1=FIST
     2=CORE
     3=LOOSE
```

RED BAY SANDY LOAM (09,07,I,a and b)

Location: 1.4 mi. N on Ga. 30 from intersection of Ga. 30 and 153; first dirt road on right 0.5 mi. from Ga. 30; SW Schley Co.
Vegetation and land use: Idle (kudzu patch)
Topography: Level (0-2%)
Drainage: Well drained
Parent Material: Medium textured marine sediments of sandy clay loam
Described and sampled by: J. A. Pilkinton, E. H. Smith, G. P. Lawless

Horizon	Description
(Pit a)	
Ap	0 to 8 inches. Reddish brown (5YR 4/4) sandy loam; weak fine granular structure; very friable; many fine and medium roots; medium to strongly acid; abrupt smooth boundary.
B21t	8 to 13 inches. Dark red (2.5YR 3/6) sandy clay loam; weak fine subangular blocky structure; friable; slightly sticky; many fine and medium roots; strongly to very strongly acid; gradual smooth boundary.
B22t	13 to 60 inches plus. Dark red (2.5YR 3/6) sandy clay loam; moderate medium subangular blocky structure; friable; slightly sticky; few fine pores; few fine roots; very strongly acid; gradual smooth boundary.
(Pit b)	
Ap	0 to 8 inches. Dark brown (7.5YR 4/4) loamy sand; weak fine granular structure; very friable; many fine and medium roots; medium to strongly acid; abrupt smooth boundary.
B21t	8 to 14 inches. Dark red (2.5YR 3/6) sandy clay loam; weak fine subangular blocky structure; friable; slightly sticky; many fine and medium roots; strongly to very strongly acid; gradual smooth boundary.
B22t	14 to 60 inches plus. Dark red (2.5YR 3/6) sandy clay loam; moderate medium subangular blocky structure; friable; slightly sticky; few fine pores; few fine roots; strongly to very strongly acid; gradual and smooth boundary.

Remarks: Colors given are for moist soil; reaction determined by Soiltex.

AMERICUS, GEORGIA

RED BAY SANDY LOAM (09,07,I,a and b)

```
      WEIGHT  PERCENT  AND  VOLUME  PERCENT  OF  WATER  RETAINED

IDENTIFICATION        T E N S I O N S  (BARS)
                                                                BD       TP       K
 9    7    4    1     .1        .3        .6        3.        15.       G/CC     PCT     IN/HR

     DEPTH                                                                  2
       0             14.43     7.61      6.58      5.58      3.11      1.42     46.42
                     20.49    10.80      9.34      7.92      4.41
                     FRAGMENT                       SIEVED    2.66ROCK  PERCENT    .60
                                                                            1
       8             19.08    14.64     11.97     11.69      9.25      1.71     35.47    1.87
                     32.62    25.03     20.46     19.98     15.81      1.76     33.58     .75
                     FRAGMENT 12.62                 SIEVED    8.11ROCK  PERCENT    .44
                                                                            1
      13             20.39    15.73     13.33     12.13     10.53      1.57     40.75    1.70
                     32.01    24.69     20.92     19.04     16.53      1.61     39.25    3.12
                     FRAGMENT 15.67                 SIEVED   10.10ROCK  PERCENT    .34


IDENTIFICATION        T E N S I O N S  (BARS)
                                                                BD       TP       K
 9    7    4    2     .1        .3        .6        3.        15.       G/CC     PCT     IN/HR

     DEPTH                                                                  2
       0              9.36     7.05      5.69      4.63      2.61      1.35     49.06
                     12.63     9.51      7.68      6.25      3.52
                     FRAGMENT                       SIEVED    4.08ROCK  PERCENT    .97
                                                                            1
       8             17.22    13.96     11.36     10.39      8.27      1.56     41.13    3.97
                     26.86    21.77     17.72     16.20     12.90      1.61     39.25    2.04
                     FRAGMENT 11.48                 SIEVED   10.73ROCK  PERCENT    .28
                                                                            1
      14             23.34    17.30     15.47     13.73     10.89      1.57     40.75    4.42
                     36.64    27.16     24.28     21.55     17.09      1.61     39.25    2.37
                     FRAGMENT 15.82                 SIEVED    6.96ROCK  PERCENT    .42

      1=FIST
      2=CORE
      3=LOOSE
```

RUSTON LOAMY SAND (09,08,C, a and b)

Location: 300 yds. SE of junction Ga. 45 and Ga. 153 in SW cor. Schley Co.
Vegetation and land use: Common bermuda and oat stubble
Topography: Very gently sloping (3-4%)
Drainage: Well drained
Parent Material: Medium textured marine sediments of sandy clay loam and sandy loam
Described and sampled by: J. A. Pilkinton, E. H. Smith, G. P. Lawless

Horizon	Description
(Pit a)	
Ap	0 to 9 inches. Dark brown (10YR 4/3) loamy sand with weak fine granular structure; very friable; fine roots abundant; strongly acid; clear wavy boundary.
B1t	9 to 16 inches. Yellowish brown (10YR 5/6) sandy loam with very weak subangular blocky structure; very friable; fine roots common; some old root holes filled with material from the Ap horizon; strongly acid; gradual wavy boundary.
B21t	16 to 40 inches. Yellowish red (5YR 4/8) sandy loam with weak fine subangular blocky structure; very friable; few fine roots; some old root holes filled with material from the B1t horizon; very strongly acid; gradual wavy boundary.
B22t	40 to 68 inches plus. Red (2.5YR 4/6 to 4/8) sandy clay loam with moderate medium subangular blocky structure; friable when moist, slightly sticky when wet; few fine roots; many fine pores and old root holes; very strongly acid.
(Pit b)[1]	
Ap	0 to 8 inches. Dark brown (10YR 4/3) loamy sand with weak fine granular structure; very friable; fine roots abundant; strongly acid; clear wavy boundary.
B1t	8 to 15 inches. Strong brown (7.5YR 5/6) sandy loam with very weak fine subangular blocky structure; very friable; fine roots common; some old root holes filled with material from Ap horizon; strongly acid; gradual wavy boundary.
B21t	15 to 38 inches. Yellowish red (5YR 4/8) sandy loam with weak fine subangular blocky structure; very friable; few fine roots; some old root holes filled with material from B1t horizon; very strongly acid; gradual wavy boundary.
B22t	38 to 68 inches plus. Red (2.5YR 4/6 to 4/8) sandy clay loam with moderate medium subangular blocky structure; friable when moist; slightly sticky when wet; few fine roots; many fine pores and old root holes; very strongly acid.

Remarks: Colors given are for moist soil; reaction determined by Soiltex.

[1] This profile grades toward the Eustis series.

RUSTON LOAMY SAND (09,08,C,a and b)

```
        WEIGHT  PERCENT  AND  VOLUME  PERCENT  OF  WATER  RETAINED

IDENTIFICATION          T E N S I O N S  (BARS)
                                                                    BD       TP       K
 9   8   2   1      .1        .3        .6        3.        15.       G/CC     PCT    IN/HR

    DEPTH                                                                2
     0              5.95      4.24      2.84      2.31      1.25      1.53     42.26
                    9.10      6.48      4.34      3.53      1.91
                   FRAGMENT                        SIEVED   2.25ROCK  PERCENT    .37
                                                                         2
     9              7.05      4.77      3.04      3.07      1.87      1.46     44.91
                   10.29      6.96      4.43      4.48      2.73
                   FRAGMENT                        SIEVED   1.86ROCK  PERCENT    .69
                                                                         2
    16              7.89      5.26      4.39      4.01      3.05      1.52     42.64
                   11.99      7.99      6.67      6.09      4.63
                   FRAGMENT                        SIEVED   2.58ROCK  PERCENT   1.74
                                                                         1
    40             15.51     10.60      9.70      8.17      7.71      1.62     38.87     3.75
                   25.12     17.17     15.71     13.23     12.49      1.66     37.36     3.06
                   FRAGMENT 11.12                  SIEVED   7.64ROCK  PERCENT   1.35

IDENTIFICATION          T E N S I O N S  (BARS)
                                                                    BD       TP       K
 9   8   2   2      .1        .3        .6        3.        15.       G/CC     PCT    IN/HR

    DEPTH                                                                2
     0              5.30      5.22      3.99      2.75      1.70      1.59     40.00
                    8.42      8.29      6.34      4.37      2.70
                   FRAGMENT                        SIEVED   1.95ROCK  PERCENT   1.99
                                                                         3
     8              7.65      5.41      4.76      3.33      2.62      1.68     36.60
                   12.85      9.08      7.99      5.59      4.40
                   FRAGMENT                        SIEVED   2.77ROCK  PERCENT    .46
                                                                         3
    15              9.64      7.52      6.32      5.38      3.92      1.47     44.53
                   14.17     11.05      9.29      7.90      5.76
                   FRAGMENT                        SIEVED   3.69ROCK  PERCENT   2.33
                                                                         1
    38             22.35     16.32     13.95     12.03      9.36      1.56     41.13     1.82
                   34.86     25.45     21.76     18.76     14.60      1.63     38.49     3.19
                   FRAGMENT 14.63                  SIEVED   9.58ROCK  PERCENT    .68

      1=FIST
      2=CORE
      3=LOOSE
```

CECIL SANDY CLAY LOAM (10,01,P,a and b)

Location: Southern Piedmont Experiment Station, Small watershed, Oconee Co.
Vegetation and land use: Coastal bermudagrass
Topography: Gently to moderately sloping
Drainage: Well drained
Parent Material: Gneiss
Described and sampled by: Stanley M. Robertson and G. P. Lawless

Horizon	Description
Pit a	
Ap	0 to 4 inches. Yellowish red (5YR 5/6) sandy clay loam; weak fine granular structure; very friable; clear, smooth boundary. Many fine roots; very thick cover of coastal bermuda grass.
B21t	4 to 7 inches. Red (2.5YR 4/6) heavy clay loam to clay. Compound structure; coarse peds break into fine and medium angular and subangular blocky peds; friable; diffuse smooth boundary. Many fine roots.
B22t	7 to 16 inches. Red (2.5YR 4/8) clay; moderate to strong subangular blocky structure; firm; diffuse smooth boundary. Many fine roots.
B23t[1]	16 to 34 inches. Red (2.5YR 4/8) clay; moderate to strong subangular and angular blocky structure; firm; diffuse smooth boundary; common fine roots; some faint red discoloration probably due to nature of parent material. The lower part of this horizon does not have as many fine roots, nor does it have as many angular blocky peds as the upper part.
B3t	34 to 59 inches plus. Red (2.5YR 4/8) clay with pink and nearly white small gravel size fragments of decomposed rock, and grains of quartzite, coarse sand size. Weak to massive structure; firm. The softened rock material seems to be coarse grain gneiss.
Pit b [2]	
Ap	0 to 7 inches. Yellowish red (5YR 4/6) heavy sandy loam to clay loam; weak fine granular structure; very friable; clear smooth boundary; very thick cover of coastal bermudagrass; many fine roots.
B22t	7 to 17 inches. Red (2.5YR 4/6) clay; moderate fine and medium subangular blocky structure; friable; diffuse smooth boundary; many fine roots.
B23t	17 to 30 inches. Red (2.5YR 4/6) clay with some very faint, small red (2.5YR 5/6) discoloration; moderate fine and medium angular and subangular blocky structure; firm; diffuse smooth boundary. Common fine roots.
B3t	30 to 65 inches plus. Red (2.5YR 4/6) clay loam with some yellowish red (5YR 5/6) discoloration, moderate medium and coarse angular and subangular blocky structure; firm; some fine mica, contains C material that seems to have come from coarse grained gneiss.

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[1] This horizon sampled at 16-26 in. and 26-34 in.

[2] This field has had deep tillage or other disturbance of the soil at some time in the past. One pit was not used because a 6-inch thick layer of A material, about 2 ft. wide, was buried under 2 ft. of B material. The Ap horizon over the field averages about 4 in. thick. In this particular pit the Ap is 7 in. thick.

CECIL SANDY CLAY LOAM (10,01,P,a and b)

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       WEIGHT  PERCENT  AND  VOLUME  PERCENT  OF  WATER  RETAINED

IDENTIFICATION         T E N S I O N S  (BARS)
                                                                BD         TP        K
10   1   1   1      .1         .3         .6         3.         15.        G/CC       PCT      IN/HR

    DEPTH                                                               1
     0              18.14      13.74      13.27      10.42       7.27      1.59       40.00       .50
                    28.84      21.84      21.09      16.56      11.55      1.65       37.74      2.28
                    FRAGMENT   11.55                   SIEVED    7.39ROCK  PERCENT    32.64
                                                                         1
     4              28.07      25.92      25.49      23.41      18.18      1.52       42.64       .57
                    42.66      39.39      38.74      35.58      27.63      1.60       39.62       .82
                    FRAGMENT   22.34                   SIEVED   12.79ROCK  PERCENT     6.95
                                                               (19.63)           1
     7              31.11      30.16      27.60      26.11      22.98      1.45       45.28       .94
                    45.10      43.73      40.02      37.85      33.32      1.61       39.25      1.25
                    FRAGMENT   28.43                   SIEVED   20.71ROCK  PERCENT     4.84
                                                                         1
    16              36.09      33.71      29.37      25.39      20.88      1.35       49.06       .17
                    48.72      45.50      39.64      34.27      28.18      1.59       40.00       .42
                    FRAGMENT   31.98                   SIEVED   22.50ROCK  PERCENT     5.30
                                                                         1
    26              25.15      24.51      20.73      19.28      16.89      1.55       41.51       .40
                    38.98      37.99      32.13      29.88      26.17      1.61       39.25       .16
                    FRAGMENT   21.32                   SIEVED   18.64ROCK  PERCENT    40.84
                                                                         1
    34              26.16      23.39      22.49      21.87      14.18      1.55       41.51       .97
                    40.54      36.25      34.85      33.89      21.97      1.63       38.49       .14
                    FRAGMENT   21.51                   SIEVED   17.36ROCK  PERCENT    28.36

IDENTIFICATION         T E N S I O N S  (BARS)
                                                                BD         TP        K
10   1   1   2      .1         .3         .6         3.         15.        G/CC       PCT      IN/HR

    DEPTH                                                               1
     0              17.41      12.72      11.64      10.23       6.27      1.56       41.13       .54
                    27.15      19.84      18.15      15.95       9.78      1.71       35.47      1.58
                    FRAGMENT   11.46                   SIEVED    6.60ROCK  PERCENT    16.66
                                                                         1
     7              27.11      26.29      23.94      21.14      18.20      1.54       41.89      2.64
                    41.74      40.48      36.86      32.55      28.02      1.66       37.36       .97
                    FRAGMENT   25.43                   SIEVED   19.88ROCK  PERCENT     1.72
                                                                         1
    17              34.03      30.96      28.06      24.20      23.65      1.40       47.17       .51
                    47.64      43.34      39.28      33.88      33.11      1.50       43.40       .38
                    FRAGMENT   29.67                   SIEVED   22.98ROCK  PERCENT     3.22
                                                                         1
    30              24.61      21.12      20.29      19.78      15.27      1.60       39.62       .17
                    39.37      33.79      32.46      31.64      24.43      1.70       35.85       .09
                    FRAGMENT   19.56                   SIEVED   14.09ROCK  PERCENT     3.27


        1=FIST
        2=CORE
        3=LOOSE
```

CECIL SANDY CLAY LOAM (10,01,C,a and b)

Location: Near SE cor. of pasture on GA-205, Southern Piedmont Experiment Station, Oconee Co.
Vegetation and land use: Small grain
Topography: Gently sloping
Drainage: Well drained
Parent Material: Gneiss
Described and sampled by: Stanley M. Robertson and G. Paul Lawless

Horizon	Description
Pit a	
Ap	0 to 4 inches. Red (5YR 4/6) sandy clay loam to heavy sandy loam; weak fine granular structure; very friable; gradual smooth boundary. Many fine roots.
B2t	4 to 27 inches. Red (2.5YR 4/8) clay; weak to moderate fine and medium subangular blocky structure; firm; diffuse smooth boundary. Common fine roots.
B3t	27 to 47 inches plus. Red (2.5YR 4/8) clay to clay loam; moderate coarse and medium angular blocky structure; firm; few fine roots; many fine mica flakes.
Pit b	
Ap	0 to 3 inches. Dark red (2.5YR 3/6) sandy clay loam; weak fine granular structure; very friable; many fine roots.
B2t	3 to 24 inches. Red (2.5YR 4/6) clay; weak fine and medium subangular blocky structure; firm; diffuse wavy boundary. Common fine roots.
B3t	24 to 47 inches. Red (2.5YR 4/6) light clay; moderate to strong medium and coarse angular blocky structure; firm; few fine roots; common mica flakes; contains rock fragments in places.
R	47 to 50 inches plus. Rock--consolidated gneiss with muscovite mica and quartzite fragments. This horizon isn't uniform under the whole area. In other places there is a C material--red (2.5YR 4/6) clay loam saprolite material with massive structure. It is irregular and varies from 0 to about 15 in. thick over rock.

CECIL SANDY CLAY LOAM (10,01,C,a and b)

```
      WEIGHT  PERCENT  AND  VOLUME  PERCENT  OF  WATER  RETAINED

IDENTIFICATION        T E N S I O N S  (BARS)
                                                                BD        TP       K
10    1    2    1     .1        .3        .6        3.        15.      G/CC      PCT    IN/HR

     DEPTH                                                             1
       0              14.99     12.85     12.56      8.36      7.50    1.70     35.85   1.20
                      25.48     21.84     21.35     14.21     12.75    1.75     33.96   2.33
                      FRAGMENT   9.70                SIEVED    6.42ROCK PERCENT
                                                                       1
       4              23.36     20.07     18.40     16.99     14.72    1.41     46.79   3.09
                      32.93     28.29     25.94     23.95     20.75    1.47     44.53   5.32
                      FRAGMENT  17.22                SIEVED   13.59ROCK PERCENT   7.39

IDENTIFICATION        T E N S I O N S  (BARS)
                                                                BD        TP       K
10    1    2    2     .1        .3        .6        3.        15.      G/CC      PCT    IN/HR

     DEPTH                                                             1
       0              21.89     19.06     18.06     14.54     10.91    1.63     38.49   1.44
                      35.68     31.06     29.43     23.70     17.78    1.71     35.47   3.14
                      FRAGMENT  18.35                SIEVED   12.36ROCK PERCENT  13.79
                                                                       1
       3              26.82     25.84     25.19     22.86     18.04    1.42     46.42   5.33
                      38.08     36.69     35.76     32.46     25.61    1.50     43.40   2.00
                      FRAGMENT  24.42                SIEVED   17.19ROCK PERCENT  19.23

       1=FIST
       2=CORE
       3=LOOSE
```

WATKINSVILLE, GEORGIA

MADISON SANDY LOAM (10,03,C,a and b)

Location: Cornfield on M. C. Southwell Farm, Clarke Co.
Vegetation and land use: Corn
Topography: Crest of slope
Drainage: Well drained
Parent Material: Gneiss and schist
Described and sampled by: Stanley M. Robertson and G. P. Lawless

Horizon	Description
Pit a	
Ap	0 to 5 inches. Yellowish red (5YR 5/6) sandy loam; weak fine granular structure; very friable; clear smooth boundary. Many fine roots.
B1t	5 to 7 inches. Red (2.5YR 4/8) sandy clay loam; weak fine and medium subangular with some angular blocky structure; friable; diffuse smooth boundary. Common fine roots, some fine mica flakes. (This horizon has a permeability that seems intermediate to that above and below it.)
B2t	7 to 21 inches. Red (2.5YR 4/8) clay; moderate fine and medium angular blocky structure; friable to firm; diffuse wavy boundary. Many fine mica flakes; few fine roots.
B3t	21 to 46 inches. Red (2.5YR 4/8) clay loam to clay; moderate medium and coarse angular blocky structure; friable to firm; diffuse wavy to irregular boundary. Many fine mica flakes; no fine roots. (This horizon has a variable depth over C and R horizons. In this pit the lower boundary varied from 36 to 52 in. Average thickness is 25 in.)
C & R	46 to 56 inches plus. Speckled black, dark gray and light gray quartz, mica-schist, with muscovite mica and some fine black grains of material not thought to be biotite mica. The C material intersperses the R material, possesses a structure similar in appearance to the rock, but is firm, not hard. It is the same color as the rock.
Pit b	
Ap	0 to 6 inches. Yellowish red (5YR 5/6) sandy loam; weak fine granular structure; very friable; abrupt smooth boundary. Many fine roots.
B1t	6 to 12 inches. Red (2.5YR 4/8) clay loam; weak fine and medium subangular blocky structure; friable; diffuse smooth boundary. Common fine roots; few mica flakes.
B2t	12 to 31 inches. Red (2.5YR 4/8) clay; moderate fine and medium angular blocky structure; firm; diffuse wavy boundary. Very few fine roots; few mica flakes.
B3t	31 to 51 inches. Red (2.5YR 4/8) clay loam; moderate coarse angular and subangular blocky structure; firm to friable; diffuse wavy boundary. Many fine mica flakes.
C & R	51 inches plus. Red (2.5YR 4/8) clay loam saprolite material and rock fragments. The structure is massive and the C material is friable to hard. The R material is quartz-mica-schist; much mica.

WATKINSVILLE, GEORGIA

MADISON SANDY LOAM (10,03,C,a and b)

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        WEIGHT  PERCENT  AND  VOLUME  PERCENT  OF  WATER  RETAINED

IDENTIFICATION       T E N S I O N S  (BARS)
                                                                BD       TP        K
10   3   2   1     .1        .3       .6       3.       15.     G/CC     PCT     IN/HR

    DEPTH                                                          1
     0           18.43    15.19    11.21    11.15     5.19     1.44    45.66      .36
                 26.53    21.87    16.14    16.05     7.47     1.50    43.40      .17
                 FRAGMENT 15.75             SIEVED   4.91ROCK PERCENT 13.23
                                                                   1
     5           23.92    23.14    21.10    20.63    16.85     1.48    44.15      .23
                 35.40    34.24    31.22    30.53    24.93     1.59    40.00      .25
                 FRAGMENT 24.79             SIEVED  18.12ROCK PERCENT  6.32
                                                                   1
     7           30.61    25.92    25.00    24.29    20.71     1.37    48.30      .24
                 41.93    35.51    34.25    33.27    28.37     1.46    44.91      .37
                 FRAGMENT 26.98             SIEVED  20.45ROCK PERCENT  6.49
                                                                   1
    21           34.23    27.72    26.38    23.14    19.39     1.38    47.92      .94
                 47.23    38.25    36.40    31.93    26.75     1.45    45.28      .79
                 FRAGMENT 24.65             SIEVED  16.08ROCK PERCENT  3.66

IDENTIFICATION       T E N S I O N S  (BARS)
                                                                BD       TP        K
10   3   2   2     .1        .3       .6       3.       15.     G/CC     PCT     IN/HR

    DEPTH                                                          1
     0           20.25    15.84    15.17    12.70     7.71     1.37    48.30     1.42
                 27.74    21.70    20.78    17.39    10.56     1.47    44.53     2.73
                 FRAGMENT 18.66             SIEVED   6.98ROCK PERCENT 16.59
                                                                   1
     6           30.61    28.29    26.63    25.49    19.86     1.36    48.68      .30
                 41.62    38.47    36.21    34.66    27.00     1.45    45.28      .71
                 FRAGMENT 27.26             SIEVED  20.28ROCK PERCENT  4.70
                                                                   1
    12           31.81    29.38    28.35    24.25    18.68     1.30    50.94     1.50
                 41.35    38.19    36.85    31.52    24.28     1.42    46.42     1.49
                 FRAGMENT 33.58             SIEVED  21.12ROCK PERCENT 17.19
                                                                   1
    31           30.31    23.70    22.02    19.16    15.26     1.46    44.91      .12
                 44.25    34.60    32.14    27.97    22.27     1.51    43.02      .25
                 FRAGMENT 26.30             SIEVED  13.02ROCK PERCENT 16.69

      1=FIST
      2=CORE
      3=LOOSE
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WATKINSVILLE, GEORGIA

MADISON SANDY LOAM (10,03,F,a)

Location: NE corner of intersection of Smokey and Nowhere Rds., Clarke Co.
Vegetation and land use: Woods, apparently never cultivated
Topography: Near crest of slope
Drainage: Well drained
Parent Material: Gneiss and schist
Described and sampled by: Stanley M. Robertson and G. P. Lawless

Horizon	Description
0	1 to 0 inch. Leaves and twigs.
A1	0 to 1 inch. Very dark grayish brown (10YR 3/2) sandy loam, weak fine granular structure; very friable; gradual smooth boundary.
A2	1 to 5 inches. Dark brown to brown (10YR 4/3) sandy loam; weak medium and fine granular structure; very friable; gradual smooth boundary. Many roots.
A3	5 to 9 inches. Yellowish red (5YR 5/8) heavy sandy loam to sandy clay loam; weak fine subangular blocky structure; very friable; gradual smooth boundary. Many roots.
B1t	9 to 12 inches. Yellowish red (5YR 5/6) sandy clay loam; weak fine subangular blocky structure; friable; diffuse smooth boundary. Few mica flakes; some large roots.
B2t	12 to 25 inches. Red (2.5YR 4/8) clay loam to clay; moderate fine and medium angular blocky structure; friable; diffuse wavy boundary. Common fine mica flakes, few large roots.
B3t	25 to 42 inches. Red (2.5YR 4/8) light clay loam; moderate medium and coarse angular blocky structure; friable; diffuse wavy boundary. Many mica flakes. The lower boundary varied in this pit from 37 to 51 in.
C	42 to 60 inches plus. Red (2.5YR 4/8) clay loam material; massive structure; decomposed weathered soft schist and mica schist material.

MADISON SANDY LOAM (10,03,F,a)

WEIGHT PERCENT AND VOLUME PERCENT OF WATER RETAINED

IDENTIFICATION	TENSIONS (BARS)					BD	TP	K
10 3 3 1	.1	.3	.6	3.	15.	G/CC	PCT	IN/HR
DEPTH						1		
0	46.21	35.13	31.46	26.47	13.23	.47	82.26	4.82
	21.71	16.51	14.78	12.44	6.21	.90	66.04	9.38
	FRAGMENT	34.86		SIEVED	13.83ROCK	PERCENT	15.38	
						1		
1	25.73	18.12	15.94	13.17	6.73	1.43	46.04	5.04
	36.79	25.91	22.79	18.83	9.62	1.47	44.53	4.33
	FRAGMENT	17.42		SIEVED	5.41ROCK	PERCENT	16.56	
						1		
5	19.43	15.19	14.57	13.10	7.33	1.52	42.64	1.32
	29.53	23.09	22.15	19.91	11.14	1.56	41.13	1.42
	FRAGMENT	15.56		SIEVED	7.34ROCK	PERCENT	16.75	
						1		
9	19.81	16.74	16.14	14.91	11.49	1.53	42.26	.73
	30.31	25.61	24.69	22.81	17.58	1.59	40.00	.76
	FRAGMENT	17.09		SIEVED	10.78ROCK	PERCENT	13.31	
						1		
12	27.60	22.84	22.91	21.10	17.70	1.57	40.75	.21
	43.33	35.85	35.96	33.12	27.78	1.63	38.49	.33
	FRAGMENT	22.55		SIEVED	18.39ROCK	PERCENT	11.53	
						1		
25	31.49	24.51	24.28	21.37	17.40	1.54	41.89	.69
	48.49	37.74	37.39	32.90	26.79	1.60	39.62	.67
	FRAGMENT	21.90		SIEVED	17.92ROCK	PERCENT	8.23	
						1		
42	29.60	20.79	19.44	16.19	12.32	1.52	42.64	.23
	44.99	31.60	29.54	24.60	18.72	1.58	40.38	.65
	FRAGMENT	21.46		SIEVED	11.76ROCK	PERCENT	4.34	

1=FIST
2=CORE
3=LOOSE

MADISON SANDY LOAM (10,03,F,b)

Location: NE corner of intersection of Smokey and Nowhere Rds., Clarke Co.
Vegetation and land use: Woods, apparently never cultivated
Topography: Near crest of slope
Drainage: Well drained
Parent Material: Gneiss and schist
Described and sampled by: Stanley M. Robertson and G. P. Lawless

Horizon	Description
0	- 1 to 0 inch. Leaves and twigs.
A1	0 to 2 inches. Dark grayish brown (10YR 4/2) sandy loam, weak fine granular structure; very friable; gradual smooth boundary. Many large and small roots; few fine mica flakes.
A2	2 to 8 inches. Brown to dark brown (10YR 4/3) sandy loam; weak fine granular structure; very friable; diffuse smooth boundary. Many large and small roots; few fine mica flakes.
A3	8 to 10 inches. Yellowish red (5YR 5/6) heavy sandy loam; weak fine granular structure; very friable; gradual smooth boundary. Many roots, few fine mica flakes.
B1t	10 to 13 inches. Red (2.5YR 5/6) sandy clay loam; weak fine and medium subangular blocky structure; friable to very friable; gradual smooth boundary. Many roots, few fine mica flakes.
B2t	13 to 35 inches. Red (2.5YR 4/6) clay loam; moderate fine and medium angular blocky structure; friable; gradual smooth boundary. Some coarse roots, few fine mica flakes.
B3t	35 to 52 inches. Red (2.5YR 4/8) light clay loam; moderate medium and coarse subangular blocky structure; friable gradual wavy boundary. Some roots, common fine mica flakes.
C	52 to 63 inches plus. Red (2.5YR 4/6) with faint lighter colored speckles (due to parent material) heavy loam, massive, friable; decomposed and disintegrated mica schist material.

WATKINSVILLE, GEORGIA

MADISON SANDY LOAM (10,03,F,b)

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        WEIGHT  PERCENT  AND  VOLUME  PERCENT  OF  WATER  RETAINED

IDENTIFICATION          T E N S I O N S  (BARS)
                                                                      BD         TP        K
10   3   3   2      .1         .3         .6         3.         15.        G/CC       PCT      IN/HR

     DEPTH                                                                   1
      0             46.87      37.20      32.45      28.57      14.20       .49      81.51      1.14
                    22.96      18.22      15.90      13.99       6.95       .95      64.15      9.38
                    FRAGMENT   36.17                  SIEVED 18.56ROCK PERCENT 28.21
                                                                             1
      2             23.78      18.59      16.99      14.70       7.24      1.40      47.17      8.06
                    33.29      26.02      23.78      20.58      10.13      1.46      44.91      5.85
                    FRAGMENT   18.70                  SIEVED 12.10ROCK PERCENT 25.51
                                                                             1
      8             19.90      15.25      14.89      12.68       6.54      1.55      41.51      1.72
                    30.84      23.63      23.07      19.65      10.13      1.62      38.87       .75
                    FRAGMENT   16.21                  SIEVED 11.92ROCK PERCENT 29.59
                                                                             1
     10             20.49      19.06      16.58      16.73      10.97      1.49      43.77       .43
                    30.53      28.39      24.70      24.92      16.34      1.57      40.75       .30
                    FRAGMENT   18.97                  SIEVED 15.64ROCK PERCENT 17.71
                                                                             1
     13             34.04      31.08      30.50      30.13      25.17      1.45      45.28      1.03
                    49.35      45.06      44.22      43.68      36.49      1.60      39.62       .88
                    FRAGMENT   32.92                  SIEVED 24.14ROCK PERCENT  2.44
                                                                             1
     35             36.51      30.76      26.47      24.84      20.95      1.34      49.43       .81
                    48.92      41.21      35.46      33.28      28.07      1.43      46.04       .43
                    FRAGMENT   29.47                  SIEVED 21.85ROCK PERCENT  3.21
                                                                             1
     52             36.05      29.34      22.45      21.60      14.54      1.45      45.28       .25
                    52.27      42.54      32.55      31.32      21.08      1.53      42.26       .26
                    FRAGMENT   27.26                  SIEVED 15.25ROCK PERCENT  2.29

        1=FIST
        2=CORE
        3=LOOSE
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FREDERICK SILT LOAM (13,04,P,a and b)

Location: Pulaski Co., Thorn Creek Watershed, approx. 800' S of house on Underwood farm (Wirtz place).
Vegetation and land use: Pasture
Topography: Gently sloping
Drainage: Well drained
Parent Material: Shale and dolomitic limestone
Described and sampled by: W. Gettys and G. P. Lawless

Horizon	Description
Pit a	
Ap	0 to 7 inches. Yellowish brown (10YR 5/4) silt loam; friable; weak fine granular structure; many fine roots; clear smooth boundary.
B1	7 to 15 inches. Reddish yellow (5YR 6/8) light silty clay loam; friable; weak fine subangular structure; few fine roots; clear smooth boundary.
B2t	15 to 23 inches. Red (2.5YR 5/8) clay loam; friable; moderate medium subangular blocky structure; few fine roots; few patchy clay films; clear smooth boundary.
B3	23 to 44 inches. Yellowish red (10YR 5/8) and brownish yellow (10YR 6/8) silty clay loam; friable; weak fine subangular blocky structure; few shale fragments.
C1	44 to 60 inches plus. Variegated yellowish red, brownish yellow, yellowish brown; highly weathered shale and limestone.
Pit b	
Ap	0 to 7 inches. Brown (10YR 5/3) silt loam; friable; weak fine granular structure; many fine roots; clear smooth boundary.
B1	7 to 16 inches. Strong brown (7.5YR 5/6) light clay loam; weak fine subangular blocky structure; few fine roots; clear smooth boundary.
B2t	16 to 30 inches. Red (2.5YR 5/8) silty clay loam; friable; slightly sticky; moderate medium subangular structure; few patchy clay films; clear smooth boundary.
B3	30 to 46 inches. Yellowish red (5YR 5/8) and brownish yellow (10YR 6/6) light silty clay loam; weak fine subangular blocky structure; some highly weathered shale fragments; clear smooth boundary.
C1	46 to 60 inches plus. Variegated yellowish red, reddish yellow and brownish yellow; highly weathered limestone and shale containing a small amount of silty soil material.

BLACKSBURG, VIRGINIA

FREDERICK SILT LOAM (13,04,P,a and b)

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     WEIGHT  PERCENT  AND  VOLUME  PERCENT  OF  WATER  RETAINED

IDENTIFICATION        T E N S I O N S  (BARS)
                                                                BD        TP       K
13   4   1   1      .1        .3        .6        3.        15.        G/CC      PCT     IN/HR

    DEPTH                                                                1
     0             35.89     26.08     20.64     19.50      7.92      1.32     50.19     .86
                   47.37     34.42     27.24     25.74     10.45      1.36     48.68     .90
                   FRAGMENT  24.84                SIEVED    8.37ROCK  PERCENT   6.10
                                                                         1
     7             29.58     23.13     19.45     18.36     11.45      1.32     50.19     .47
                   39.04     30.53     25.67     24.23     15.11      1.42     46.42     .86
                   FRAGMENT  24.22                SIEVED   12.31ROCK  PERCENT   5.00
                                                                         1
    15             32.25     28.04     25.00     24.85     21.93      1.26     52.45     .34
                   40.63     35.33     31.50     31.31     27.63      1.37     48.30     .32
                   FRAGMENT  30.58                SIEVED   18.64ROCK  PERCENT  10.68
                                                                         1
    23             35.93     33.56     31.24     30.46     29.26      1.24     53.21     .46
                   44.55     41.61     38.73     37.77     36.28      1.42     46.42     .29
                   FRAGMENT  35.49                SIEVED   22.99ROCK  PERCENT   6.41
                                                                         1
    44             47.85     45.52     43.22     40.64     38.98      1.09     58.87     .05
                   52.15     49.61     47.10     44.29     42.48      1.24     53.21     .04
                   FRAGMENT  46.41                SIEVED   33.50ROCK  PERCENT   9.30


IDENTIFICATION        T E N S I O N S  (BARS)
                                                                BD        TP       K
13   4   1   2      .1        .3        .6        3.        15.        G/CC      PCT     IN/HR

    DEPTH                                                                1
     0             33.01     25.36     20.20     18.14      7.64      1.27     52.08     .72
                   41.92     32.20     25.65     23.03      9.70      1.35     49.06     .23
                   FRAGMENT  25.90                SIEVED    6.77ROCK  PERCENT   2.89
                                                                         1
     7             25.96     21.64     18.48     16.73     10.27      1.30     50.94     .37
                   33.74     28.13     24.02     21.74     13.35      1.41     46.79     .44
                   FRAGMENT  21.53                SIEVED    8.84ROCK  PERCENT
                                                                         1
    16             28.92     26.05     23.72     22.97     20.76      1.47     44.53     .57
                   42.51     38.29     34.86     33.76     30.51      1.52     42.64     .46
                   FRAGMENT  25.82                SIEVED   21.46ROCK  PERCENT   4.36
                                                                         1
    30             33.93     32.75     30.68     30.67     29.47      1.36     48.68     .10
                   46.14     44.54     41.72     41.71     40.07      1.40     47.17      0
                   FRAGMENT  31.56                SIEVED   26.51ROCK  PERCENT  47.63
                                                                         1
    46             35.94     32.74     31.09     30.71     27.60      1.30     50.94      0
                   46.72     42.56     40.41     39.92     35.88      1.36     48.68     .06
                   FRAGMENT  33.83                SIEVED   25.84ROCK  PERCENT  47.63


    1=FIST
    2=CORE
    3=LOOSE
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GREENDALE SILT LOAM (13,05,P,a and b)

Location: Montgomery Co., Crab Creek Watershed, Bryant farm, approx. 800' SW of Bryant house.
Vegetation and land use: Meadow
Topography: Gently sloping
Drainage: Well drained
Parent Material: Colluvial
Described and sampled by: W. Gettys and G. P. Lawless

Horizon	Description
Pit a	
Ap	0 to 7 inches. Dark gray (10YR 4/1) silt loam; very friable; weak fine granular structure; abundance of fine roots; clear smooth boundary.
A2	7 to 38 inches. Yellowish brown (10YR 5/4) silt loam; very friable; weak fine granular structure; many fine roots; clear smooth boundary.
B1	38 to 44 inches. Reddish brown (5YR 4/3) and yellowish brown (10YR 5/8) light silty clay loam; friable; very weak fine subangular blocky structure; clear smooth boundary.
C	44 to 57 inches. Yellowish brown (10YR 5/8) silty clay loam soil material; friable; distinct reddish brown common mottling; weak and moderate, fine and medium angular and subangular blocky structure; many interbedded chert, quartz, and limestone fragments; also many highly weathered manganese fragments.
Pit b	
Ap	0 to 7 inches. Dark gray (10YR 4/1) silt loam; very friable; weak fine granular structure; abundance of fine roots; clear smooth boundary.
A2	7 to 35 inches. Yellowish brown (10YR 5/4) silt loam; very friable; weak fine granular structure; many fine roots; clear smooth boundary.
B1	35 to 44 inches. Dark reddish brown (5YR 3/3) and yellowish brown (10YR 5/8) light silty clay; friable; very weak structure; clear smooth boundary.
C	44 to 57 inches. Yellowish brown (10YR 5/8) silty clay loam soil material; friable; distinct reddish brown common mottling; weak and moderate, fine and medium angular and subangular blocky structure; many interbedded chert, quartz, and limestone fragments; also many highly weathered manganese fragments.

GREENDALE SILT LOAM (13,05,P,a and b)

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      WEIGHT  PERCENT  AND  VOLUME  PERCENT  OF  WATER  RETAINED

IDENTIFICATION        T E N S I O N S  (BARS)
                                                               BD       TP       K
13   5   1   1     .1        .3        .6        3.       15.       G/CC     PCT    IN/HR

     DEPTH                                                           1
      0            27.27     18.18     16.41     12.06     8.26     1.30     50.94   1.11
                   35.45     23.63     21.33     15.67    10.73     1.35     49.06   2.84
                   FRAGMENT  20.70                SIEVED   8.29ROCK PERCENT  28.47
                                                                     1
      7            26.54     19.41     14.42     13.86     8.48     1.33     49.81    .80
                   35.29     25.81     19.17     18.43    11.27     1.40     47.17    .72
                   FRAGMENT  20.67                SIEVED   6.97ROCK PERCENT  31.30
                                                                     1
     38            27.02     22.98     21.17     20.10    17.39     1.38     47.92   5.90
                   37.28     31.71     29.21     27.73    23.99     1.46     44.91    .46
                   FRAGMENT  24.85                SIEVED  14.24ROCK PERCENT   4.98
                                                                     1
     44            23.42     22.06     21.63     19.67    11.98     1.54     41.89    .06
                   36.06     33.97     33.31     30.29    18.44     1.61     39.25    .27
                   FRAGMENT  25.75                SIEVED  15.38ROCK PERCENT  45.70


IDENTIFICATION        T E N S I O N S  (BARS)
                                                               BD       TP       K
13   5   1   2     .1        .3        .6        3.       15.       G/CC     PCT    IN/HR

     DEPTH                                                           1
      0            25.92     20.60     19.32     15.42     8.03     1.33     49.81    .39
                   34.47     27.39     25.69     20.50    10.67     1.36     48.68   1.38
                   FRAGMENT  22.54                SIEVED   7.69ROCK PERCENT  14.69
                                                                     1
      7            26.35     22.46     19.39     17.62     9.00     1.34     49.43   1.26
                   35.30     30.09     25.98     23.61    12.06     1.39     47.55    .08
                   FRAGMENT  23.75                SIEVED  16.75ROCK PERCENT  34.41
                                                                     1
     35            29.18     24.84     22.22     20.96    12.96     1.36     48.68    .56
                   39.68     33.78     30.21     28.50    17.62     1.43     46.04    .26
                   FRAGMENT  25.57                SIEVED  12.98ROCK PERCENT   9.57
                                                                     1
     44            24.04     21.75     20.07     19.74    13.73     1.49     43.77    .29
                   35.81     32.40     29.90     29.41    20.45     1.57     40.75    .58
                   FRAGMENT  23.44                SIEVED  16.41ROCK PERCENT  15.84

      1=FIST
      2=CORE
      3=LOOSE
```

GROSECLOSE SILT LOAM (13,06,P,a and b)

Location: Agricultural Engineering Farm, near Prices Fork, Va.
Vegetation and land use: Pasture
Topography: Gently sloping
Drainage: Well drained
Parent Material: Shale (Rome formation)
Described and sampled by: W. Gettys and G. P. Lawless

Horizon	Description
Pit a	
Ap	0 to 6 inches. Dark brown (10YR 4/2) silt loam; friable; fine granular structure; many fine roots; clear smooth boundary.
A2	6 to 11 inches. Light yellowish brown (10YR 6/4) silt loam; friable; fine granular structure; few fine roots; clear smooth boundary.
B2	11 to 21 inches. Yellowish brown (10YR 5/4) and strong brown (7.5YR 5/4) clay loam; friable; weak medium subangular blocky structure; few round quartz concretions 1/8-1/4 inch in diameter; clear smooth boundary.
B3	21 to 26 inches. Yellowish brown (10YR 5/4) and yellowish red (5YR 5/6) clay loam; friable; weak subangular blocky and weak granular structure; containing a high percentage of highly weathered shale.
C1	26 to 40 inches. Yellowish brown, strong brown, and yellowish red highly weathered shale containing small amount silty material.
C2	40 to 57 inches. Sampled but not described.
Pit b	
Ap	0 to 6 inches. Dark grayish brown (10YR 4/2) silt loam; friable; fine granular structure; many fine roots; clear smooth boundary.
A2	6 to 11 inches. Light yellowish brown (10YR 6/4) silt loam; friable; fine granular structure; few fine roots; clear smooth boundary.
B2	11 to 21 inches. Yellowish brown (10YR 5/4) and strong brown (7.5YR 5/4) clay loam; friable; weak medium subangular blocky structure; few round quartz concretions 1/8-1/4 inch in diameter; clear smooth boundary.
B3	21 to 26 inches. Yellowish brown (10YR 5/4) and yellowish red (5YR 5/6) clay loam; friable; weak subangular blocky and weak granular structure; containing high percentage of highly weathered shale.
C1	26 to 40 inches. Yellowish brown, strong brown, and yellowish red highly weathered shale containing small amount silty material.

BLACKSBURG, VIRGINIA

GROSECLOSE SILT LOAM (13,06,P,a and b)

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      WEIGHT  PERCENT  AND  VOLUME  PERCENT  OF  WATER  RETAINED

IDENTIFICATION        T E N S I O N S  (BARS)
                                                                BD        TP        K
13    6    1    1     .1        .3        .6        3.        15.       G/CC      PCT       IN/HR

      DEPTH                                                               1
       0              27.99     24.85     19.49     12.38      7.52     1.45      45.28      .58
                      40.58     36.03     28.26     17.95     10.90     1.50      43.40      .37
                      FRAGMENT  22.67                 SIEVED   7.29ROCK PERCENT    7.48
                                                                          1
       6              26.49     23.04     19.19     16.74     13.36     1.52      42.64      .10
                      40.26     35.02     29.16     25.44     20.30     1.60      39.62      .38
                      FRAGMENT  21.71                 SIEVED   9.75ROCK PERCENT   15.99
                                                                          1
      11              40.97     38.64     37.95     33.57     24.84     1.15      56.60      .84
                      47.11     44.43     43.64     38.60     28.56     1.38      47.92     1.20
                      FRAGMENT  39.51                 SIEVED  25.22ROCK PERCENT   34.13
                                                                          1
      21              42.10     40.41     39.47     38.63     36.64     1.13      57.36      .50
                      47.57     45.66     44.60     43.65     41.40     1.32      50.19      .44
                      FRAGMENT  40.38                 SIEVED  32.80ROCK PERCENT   21.63
                                                                          1
      26              38.50     35.39     34.80     34.12     31.33     1.21      54.34      .21
                      46.58     42.82     42.10     41.28     37.90     1.27      52.08      .55
                      FRAGMENT  35.27                 SIEVED  28.72ROCK PERCENT   10.87
                                                                          1
      40              48.06     44.00     42.77     42.30     27.56     1.21      54.34      .31
                      58.15     53.24     51.75     51.18     33.34     1.33      49.81      .14
                      FRAGMENT  42.99                 SIEVED  28.48ROCK PERCENT   22.79

IDENTIFICATION        T E N S I O N S  (BARS)
                                                                BD        TP        K
13    6    1    2     .1        .3        .6        3.        15.       G/CC      PCT       IN/HR

      DEPTH                                                               1
       0              29.74     22.98     18.04     11.21      6.25     1.41      46.79      .40
                      41.93     32.40     25.43     15.80      8.81     1.47      44.53      .37
                      FRAGMENT  25.82                 SIEVED   6.37ROCK PERCENT    5.91
                                                                          1
       6              23.30     17.93     15.76     10.90      5.04     1.50      43.40      .89
                      34.95     26.89     23.64     16.35      7.56     1.54      41.89      .65
                      FRAGMENT  17.80                 SIEVED   4.01ROCK PERCENT   20.02
                                                                          1
      11              22.69     18.00     16.27     13.91      7.20     1.53      42.26      .25
                      34.71     27.54     24.89     21.28     11.01     1.50      43.40      .85
                      FRAGMENT  19.45                 SIEVED   7.76ROCK PERCENT    1.28
                                                                          1
      21              24.23     20.27     18.71     17.67     11.42     1.39      47.55      .37
                      33.67     28.17     26.00     24.56     15.87     1.46      44.91      .64
                      FRAGMENT  22.03                 SIEVED  11.84ROCK PERCENT   15.67
                                                                          1
      26              24.12     19.75     17.55     16.87     15.05     1.55      41.51      .56
                      37.38     30.61     27.20     26.14     23.32     1.61      39.25      .28
                      FRAGMENT  21.06                 SIEVED  10.57ROCK PERCENT    1.04

      1=FIST
      2=CORE
      3=LOOSE
```

GROSECLOSE SILT LOAM (13,06,P,c and d)

Location: Pulaski Co., Thorne Creek Watershed, Chick Richardson farm; pit c 200' NW of barn, pit d 170' W of barn.
Vegetation and land use: Pasture
Topography: Gently sloping
Drainage: Well drained
Parent Material: Pit c, Shale (Rome formation); Pit d, Shale and limestone (Rome formation)
Described and sampled by: W. Gettys and G. P. Lawless

Horizon	Description
Pit c	
Ap	0 to 9 inches. Grayish brown (10YR 5/2) silt loam; friable; weak, fine granular structure; abundance of small roots; clear smooth boundary.
B1	9 to 16 inches. Yellowish brown (10YR 5/8) clay loam; friable; weak, fine subangular blocky structure; some deposition from above horizon through root channels; few fine roots; clear smooth boundary.
B2	16 to 24 inches. Strong brown (7.5YR 5/8) clay loam; slightly plastic; firm; moderate medium subangular blocky structure; few shale fragments; clear smooth boundary.
B3	24 to 31 inches. Strong brown (7.5YR 5/8) and yellowish red (5YR 4/8) and brownish yellow (10YR 6/6) clay loam; slightly plastic; medium weak subangular blocky structure; containing considerable portion of highly weathered shale; clear smooth boundary.
C1	31 inches plus. Yellowish highly weathered shale with few black spots, containing small amount of silty soil material.
Pit d	
Ap	0 to 8 inches. Dark grayish brown (10YR 4/2) silt loam; friable; fine granular structure; many fine roots; many fine concretions; clear smooth boundary.
B1	8 to 15 inches. Strong brown (7.5YR 5/8) and light yellowish brown (10YR 6/4) light silty clay loam; friable; weak medium subangular blocky structure; few weathered shale fragments; few fine roots; clear smooth boundary.
B2	15 to 27 inches. Strong brown (7.5YR 5/8) clay loam; friable; weak medium subangular blocky structure; few yellowish weathered shale fragments throughout the horizon; clear smooth boundary.
B3	27 to 37 inches. Yellowish brown (10YR 5/8) and strong brown (7.5YR 5/8) silt loam; friable; weak, fine subangular blocky and weak, fine granular structure, containing high percentage of highly weathered yellowish shale.
C1	37 inches plus. Yellowish highly weathered shale containing small amounts of silty soil material; shale material contains a few black spots of manganese-like material.

GROSECLOSE SILT LOAM (13,06,P,c and d)

WEIGHT PERCENT AND VOLUME PERCENT OF WATER RETAINED

IDENTIFICATION	TENSIONS (BARS)					BD	TP	K
13 6 1 3	.1	.3	.6	3.	15.	G/CC	PCT	IN/HR
DEPTH						1		
0	28.83	26.13	21.39	17.67	9.13	1.46	44.91	.99
	42.09	38.14	31.22	25.79	13.32	1.50	43.40	.76
	FRAGMENT	25.19		SIEVED	8.91ROCK	PERCENT	.43	
						1		
9	31.62	27.47	22.72	20.83	13.10	1.34	49.43	.25
	42.37	36.80	30.44	27.91	17.55	1.46	44.91	.05
	FRAGMENT	26.33		SIEVED	12.98ROCK	PERCENT	10.45	
						1		
16	38.09	34.22	30.43	29.20	21.14	1.28	51.70	0
	48.75	43.80	38.95	37.37	27.05	1.51	43.02	.02
	FRAGMENT	34.71		SIEVED	21.64ROCK	PERCENT	21.76	
						1		
24	41.24	37.58	32.20	32.48	21.56	1.21	54.34	.14
	49.90	45.47	38.96	39.30	26.08	1.27	52.08	.14
	FRAGMENT	40.70		SIEVED	18.93ROCK	PERCENT	6.69	
						1		
31	48.38	40.02	37.39	35.62	21.81	1.18	55.47	0
	57.08	47.22	44.12	42.03	25.73	1.20	54.72	
	FRAGMENT	40.77		SIEVED	21.83ROCK	PERCENT	.50	

IDENTIFICATION	TENSIONS (BARS)					BD	TP	K
13 6 1 4	.1	.3	.6	3.	15.	G/CC	PCT	IN/HR
DEPTH						1		
0	32.98	28.57	20.81	16.23	7.40	1.33	49.81	.58
	43.86	37.99	27.67	21.58	9.84	1.38	47.92	1.46
	FRAGMENT	28.11		SIEVED	7.36ROCK	PERCENT	10.38	
						1		
8	29.89	27.27	22.54	21.64	9.91	1.31	50.57	.12
	39.15	35.72	29.52	28.34	12.98	1.35	49.06	.17
	FRAGMENT	27.54		SIEVED	9.93ROCK	PERCENT	12.33	
						1		
15	34.94	32.15	26.58	26.43	20.94	1.12	57.74	.33
	39.13	36.00	29.76	29.60	23.45	1.22	53.96	.24
	FRAGMENT	32.93		SIEVED	18.91ROCK	PERCENT	8.32	
						1		
27	40.39	37.77	34.10	32.76	21.47	1.16	56.23	.04
	46.85	43.81	39.55	38.00	24.90	1.24	53.21	.14
	FRAGMENT	36.07		SIEVED	23.39ROCK	PERCENT	.47	
						1		
37	45.28	41.99	37.41	33.33	24.48	1.06	60.00	.08
	47.99	44.50	39.65	35.32	25.94	1.15	56.60	0
	FRAGMENT	41.49		SIEVED	20.13ROCK	PERCENT	32.08	

1=FIST
2=CORE
3=LOOSE

LITZ SILT LOAM (13,08,P,a and b)

Location: Pulaski Co., Thorne Creek Watershed, Chick Richardson farm, 250' NE of barn.
Vegetation and land use: Pasture
Topography: Sloping
Drainage: Well drained
Parent Material: Shale
Described and sampled by: W. Gettys and G. P. Lawless

Horizon	Description
Pit a	
Ap	0 to 6 inches. Brown (10YR 5/3) silt loam; friable; weak fine granular structure; few yellowish shale fragments; many fine roots; clear smooth boundary.
B2	6 to 14 inches. Strong brown (7.5YR 5/6) light silty clay loam; friable; weak subangular blocky structure; many shale fragments; many fine roots.
IIC	14 to 24 inches plus. Soft, hard, and broken yellowish shale with a very small amount of soil material accumulated around cracks and breaks.
Pit b	
Ap	0 to 6 inches. Brown (10YR 5/3) silt loam; friable; weak fine granular structure; few yellowish shale fragments; many fine roots; clear smooth boundary.
B2	6 to 14 inches. Strong brown (7.5YR 5/6) light silty clay loam; friable; weak subangular blocky structure; many shale fragments; many fine roots.
IIC	14 to 24 inches plus. Soft, hard, and broken yellowish shale with a very small amount of soil material accumulated around cracks and breaks.

LITZ SILT LOAM (13,08,P,a and b)

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     WEIGHT  PERCENT  AND  VOLUME  PERCENT  OF  WATER  RETAINED

IDENTIFICATION        T E N S I O N S  (BARS)
                                                                BD        TP       K
13   8   1   1     .1        .3        .6        3.        15.        G/CC      PCT     IN/HR

     DEPTH                                                                 1
       0           35.37     31.86     25.55     22.95     10.12      1.15      56.60     2.80
                   40.67     36.63     29.38     26.39     11.63      1.23      53.58     1.13
                   FRAGMENT  31.30                 SIEVED  12.04ROCK  PERCENT   14.33
                                                                           1
       6           30.80     29.38     24.70     22.95     11.58      1.30      50.94      .56
                   40.04     38.19     32.11     29.83     15.05      1.35      49.06     1.22
                   FRAGMENT  29.55                 SIEVED   9.03ROCK  PERCENT   24.16


IDENTIFICATION        T E N S I O N S  (BARS)
                                                                BD        TP       K
13   8   1   2     .1        .3        .6        3.        15.        G/CC      PCT     IN/HR

     DEPTH                                                                 1
       0           36.36     32.67     26.23     22.38     11.67      1.13      57.36     1.65
                   41.08     36.91     29.63     25.28     13.18      1.20      54.72     1.69
                   FRAGMENT  35.50                 SIEVED  11.72ROCK  PERCENT   18.78
                                                                           1
       6           30.55     30.14     25.46     23.77      8.68      1.34      49.43      .30
                   40.93     40.38     34.11     31.85     11.63      1.40      47.17      .22
                   FRAGMENT  31.62                 SIEVED   7.95ROCK  PERCENT   33.01


        1=FIST
        2=CORE
        3=LOOSE
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LODI LOAM (deep stratum phase) (13,09,P,a and b)

Location: Montgomery Co., Crab Creek Watershed, Harmon Farm; pit a 40' N of R-3 weather station; pit b 75' N of R-3 weather station.
Vegetation and land use: Pasture
Topography: Gently sloping
Drainage: Well drained
Parent Material: Sandy dolomitic limestone
Described and sampled by: W. Gettys and G. P. Lawless

Horizon	Description
Pit a	
Ap	0 to 7 inches. Brown (10YR 4/3) light loam; very friable; weak, fine granular structure; abundance of fine roots; clear smooth boundary.
B1	7 to 13 inches. Strong brown (7.5YR 5/8) clay loam; friable; weak, medium subangular blocky structure; few fine roots; small deposition around root channels from horizon above; clear smooth boundary.
B2t	13 to 30 inches. Yellowish red (5YR 5/8) clay; firm; moderate medium subangular blocky structure; few fine roots; few patchy clay films; gradual smooth boundary.
B3	30 to 42 inches. Yellowish red (5YR 5/8) and yellowish brown (10YR 6/6) clay loam; friable; weak subangular blocky structure; containing considerable amount of well weathered yellowish shale; clear smooth boundary.
C1	42 to 62 inches plus. Yellowish brown and yellowish red highly weathered shale and limestone containing a small amount of soil material.
Pit b	
Ap	0 to 7 inches. Dark grayish brown (10YR 4/2) light loam; very friable; weak fine granular structure; abundance of fine roots; clear smooth boundary.
B1	7 to 16 inches. Strong brown (7.5YR 5/8) clay loam; friable; weak medium subangular structure; small deposition around root channels from horizon above; few fine roots; clear smooth boundary.
B2t	16 to 27 inches. Yellowish red (5YR 5/8) clay; firm; moderate medium subangular blocky structure; few patchy clay films; few fine roots; gradual smooth boundary.
B3	27 to 46 inches. Yellowish red (5YR 5/8) and strong brown (7.5YR 5/8) silty clay loam; friable; weak fine subangular blocky structure; containing considerable amounts of well weathered shale and limestone; clear smooth boundary.
C1	46 to 60 inches plus. Yellowish red and yellowish brown highly weathered shale and limestone mixed with a small amount of silty soil material.

LODI LOAM (deep stratum phase) (13,09,P,a and b)

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     WEIGHT  PERCENT  AND  VOLUME  PERCENT  OF  WATER  RETAINED

IDENTIFICATION        T E N S I O N S  (BARS)
                                                            BD       TP       K
13   9   1   1      .1       .3       .6       3.       15.      G/CC     PCT    IN/HR

    DEPTH                                                           1
     0              25.00    16.49    15.81    14.42     7.61    1.37    48.30    1.27
                    34.25    22.59    21.65    19.75    10.42    1.44    45.66     .60
                    FRAGMENT 15.59               SIEVED   6.45ROCK PERCENT 28.98
                                                                    1
     7              22.14    16.37    14.81    12.64     7.00    1.61    39.25    1.07
                    35.64    26.35    23.84    20.35    11.27    1.65    37.74     .18
                    FRAGMENT 15.58               SIEVED   6.78ROCK PERCENT  1.67
                                                                    1
    13              34.29    33.07    22.22    20.21    19.92    1.31    50.57     .12
                    44.91    43.32    29.10    26.47    26.09    1.50    43.40     .02
                    FRAGMENT 35.14               SIEVED  18.67ROCK PERCENT
                                                                    1
    30              38.01    36.63    35.54    34.40    24.77    1.22    53.96     .10
                    46.37    44.68    43.35    41.96    30.21    1.36    48.68     .28
                    FRAGMENT 36.04               SIEVED  30.12ROCK PERCENT 15.84
                                                                    1
    42              36.71    35.48    34.81    33.76    24.12    1.25    52.83     .50
                    45.88    44.35    43.51    42.20    30.15    1.32    50.19     .09
                    FRAGMENT 35.76               SIEVED  29.93ROCK PERCENT 30.32

IDENTIFICATION        T E N S I O N S  (BARS)
                                                            BD       TP       K
13   9   1   2      .1       .3       .6       3.       15.      G/CC     PCT    IN/HR

    DEPTH                                                           1
     0              23.41    17.12    16.01    10.56     5.78    1.42    46.42    2.29
                    33.24    24.31    22.73    14.99     8.20    1.49    43.77    2.06
                    FRAGMENT 19.08               SIEVED   6.26ROCK PERCENT 21.38
                                                                    1
     7              22.38    15.97    14.74    11.28     7.33    1.67    36.98     .64
                    37.37    26.66    24.61    18.83    12.24    1.68    36.60     .45
                    FRAGMENT 14.94               SIEVED   8.22ROCK PERCENT  1.17
                                                                    1
    16              34.22    33.33    32.21    31.42    28.64    1.28    51.70     .10
                    43.80    42.66    41.22    40.21    36.65    1.45    45.28     .25
                    FRAGMENT 35.20               SIEVED  25.21ROCK PERCENT  2.17
                                                                    1
    27              38.55    36.76    36.60    36.51    33.97    1.18    55.47     .73
                    45.48    43.37    43.18    43.08    40.08    1.27    52.08     .41
                    FRAGMENT 38.56               SIEVED  31.94ROCK PERCENT 32.99
                                                                    1
    46              42.44    38.82    38.77    35.40    23.75    1.20    54.72     .04
                    50.92    46.58    46.52    42.48    28.50    1.31    50.57     .20
                    FRAGMENT 40.47               SIEVED  31.41ROCK PERCENT 14.72


     1=FIST
     2=CORE
     3=LOOSE
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EDNEYVILLE FINE SANDY LOAM (13,16,P,a and b)

Location: Floyd Co., Brush Creek Watershed, near Terrys Fork, on ridge near boundary of Podge farm, pits 25' apart N-S.
Vegetation and land use: Pasture
Topography: Gently sloping
Drainage: Well drained
Parent Material: Light colored granite gneiss
Described and sampled by: C. N. Judy and G. P. Lawless

Horizon	Description
Pit a	
Ap	0 to 8 inches. Brown to dark brown (10YR 4/3) fine sandy loam; very friable; weak fine granular structure; many fine roots; clear smooth boundary.
B21t	8 to 16 inches. Yellowish brown (10YR 5/6) light fine sandy clay loam; friable; weak, medium with some weak, fine subangular blocky structure; fine roots are common; many fine and medium pores; gradual irregular boundary.
B22t	16 to 24 inches. Yellowish brown (10YR 5/6) fine sandy clay loam; friable; weak, medium with some weak, fine subangular blocky structure; few fine roots; fine and medium pores are common; occasional thin patchy clay films; gradual irregular boundary.
B3	24 to 29 inches. Variegated yellowish brown (10YR 5/6) and brownish yellow (10YR 6/6) heavy loam; weak, medium and weak, fine angular blocky structure; fine pores are common; gradual irregular boundary.
C1	29 to 40 inches. Variegated strong brown, yellowish brown, and brownish yellow loamy soil material; gradual irregular boundary.
C2	40 to 50 inches. Brownish yellow with some yellowish brown fine sandy loam soil material; rock structure; some thin dark colored vertical mineral streaks; clear wavy boundary.
C3	50 to 69 inches plus. Yellowish brown and brownish yellow fine sandy loam material and rock structure; some thin dark colored vertical mineral streaks.
Pit b	
Ap	0 to 9 inches. Brown to dark brown (10YR 4/3) loam to fine sandy loam; very friable; weak, fine granular structure; many fine roots; clear smooth boundary.
B2t	9 to 25 inches. Yellowish brown (10YR 5/6) light clay loam; friable; moderate medium subangular blocky structure; fine roots are common; many fine and medium pores and few thin patchy clay films; gradual irregular boundary.
B3	25 to 31 inches. Variegated strong brown (7.5YR 5/6) brownish yellow (10YR 6/6) light clay loam to loam; friable; weak medium and fine subangular blocky structure; occasional fine roots; many medium and fine pores; gradual irregular boundary.
C	31 to 67 inches plus. Variegated strong brown, brownish yellow, and yellowish brown fine sandy loam soil material; contains a few thin streaks of strong brown light clay loam soil material in upper 7 in.; rock influenced structure.

EDNEYVILLE FINE SANDY LOAM (13,16,P,a and b)

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      WEIGHT  PERCENT  AND  VOLUME  PERCENT  OF  WATER  RETAINED

IDENTIFICATION        T E N S I O N S  (BARS)
                                                               BD        TP        K
13  16   1   1     .1        .3        .6        3.        15.       G/CC      PCT     IN/HR

    DEPTH                                                         1
     0             25.46     21.42     19.92     16.14      8.02     1.25      52.83     1.12
                   31.82     26.77     24.90     20.17     10.02     1.32      50.19     1.38
                   FRAGMENT  21.16               SIEVED     8.50ROCK PERCENT   4.34
                                                                  1
     8             29.25     22.17     21.96     16.86     11.38     1.37      48.30      .56
                   40.07     30.37     30.08     23.09     15.59     1.47      44.53      .08
                   FRAGMENT  20.97               SIEVED    10.55ROCK PERCENT  20.12
                                                                  1
    16             33.78     24.69     24.39     19.03     13.84     1.38      47.92      .12
                   46.61     34.07     33.65     26.26     19.09     1.49      43.77      .17
                   FRAGMENT  23.74               SIEVED    11.84ROCK PERCENT  17.83
                                                                  1
    24             30.18     24.72     22.92     20.33     12.57     1.46      44.91      .13
                   44.06     36.09     33.46     29.68     18.35     1.55      41.51      .97
                   FRAGMENT  23.91               SIEVED    15.27ROCK PERCENT  31.61
                                                                  1
    29             29.95     24.56     22.00     18.48     13.84     1.39      47.55      .29
                   41.63     34.13     30.58     25.68     19.23     1.45      45.28     1.41
                   FRAGMENT  24.70               SIEVED    10.82ROCK PERCENT  17.25
                                                                  1
    40             31.81     19.27     13.73      9.44      7.31     1.35      49.06      .19
                   42.94     26.01     18.53     12.74      9.86     1.40      47.17      .19
                   FRAGMENT  20.40               SIEVED     4.16ROCK PERCENT   2.16
                                                                  1
    50             30.90     17.70     12.93     11.31      4.74     1.36      48.68      .28
                   42.02     24.07     17.58     15.38      6.44     1.41      46.79      .23
                   FRAGMENT  19.07               SIEVED     6.04ROCK PERCENT   9.13

IDENTIFICATION        T E N S I O N S  (BARS)
                                                               BD        TP        K
13  16   1   2     .1        .3        .6        3.        15.       G/CC      PCT     IN/HR

    DEPTH                                                         1
     0             27.27     21.63     18.48     17.82      8.33     1.35      49.06      .49
                   36.81     29.20     24.94     24.05     11.24     1.41      46.79     1.03
                   FRAGMENT  21.31               SIEVED     8.78ROCK PERCENT  10.38
                                                                  1
     9             40.70     30.90     29.24     25.78     21.05     1.24      53.21      .20
                   50.46     38.31     36.25     31.96     26.10     1.37      48.30      .11
                   FRAGMENT  32.16               SIEVED    17.38ROCK PERCENT
                                                                  1
    25             35.37     24.59     21.22     20.30     16.66     1.24      53.21      .06
                   43.85     30.49     26.31     25.17     20.65     1.32      50.19      .12
                   FRAGMENT  24.04               SIEVED    12.96ROCK PERCENT
                                                                  1
    31             32.70     19.36     10.71      7.96      6.25     1.43      46.04      .79
                   46.76     27.68     15.31     11.38      8.93     1.47      44.53     1.63
                   FRAGMENT  21.18               SIEVED     7.69ROCK PERCENT   3.59


     1=FIST
     2=CORE
     3=LOOSE
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CHESTER LOAM (13,17,P,a and b)

Location: Floyd Co., Brush Creek Watershed, on Smith farm, 25' W of road fence, 1350' along #608 S of old Rifton School; pit b 15' W of pit a.
Vegetation and land use: Pasture
Topography: Gently sloping
Drainage: Well drained
Parent Material: Granite gneiss and schist
Described and sampled by: C. N. Judy and G. P. Lawless

Horizon	Description
Pit a	
Ap	0 to 7 inches. Brown to dark brown (10YR 4/3) and dark yellowish brown (10YR 4/4) crushed loam; moderate medium and moderate fine granular structure; very friable; many fine roots; clear smooth boundary.
B21t	7 to 19 inches. Yellowish red (5YR 5/6) clay loam; moderate fine and medium subangular blocky structure; friable; few faint thin discontinuous clay films; fine roots common; many fine medium pores; gradual smooth boundary.
B22t	19 to 31 inches. Yellowish red (5YR 4/6) clay loam; moderate fine and medium subangular blocky structure; friable; few fine roots; thin continuous clay films; fine pores common; gradual smooth boundary.
B3	31 to 39 inches. Strong brown (7.5YR 5/6) silty clay loam; weak fine and medium subangular blocky structure; friable; occasional fine roots; few thin faint discontinuous clay films; contains about 25 percent highly weathered schist; gradual irregular boundary.
C	39 to 72 inches plus. Variegated strong brown, yellowish brown, light gray silty soil material; few streaks of dark brown and black; few finely divided mica flakes.
Pit b	
Ap	0 to 8 inches. Dark yellowish brown (10YR 4/4) loam; some crushed; moderate fine and medium granular structure; very friable; many fine roots; clear smooth boundary.
B1	8 to 10 inches. Yellowish brown (10YR 5/6) light clay loam; moderate fine subangular blocky structure; friable; fine roots common; many fine pores; gradual smooth boundary.
B21t	10 to 18 inches. Yellowish red (5YR 5/6) clay loam; moderate fine and medium subangular blocky structure; friable; fine roots common; fine pores common; gradual smooth boundary.
B22t	18 to 32 inches. Yellowish red (2.5YR 4/8) silty clay loam; moderate fine and medium subangular blocky structure; friable; occasional fine roots; few fine pores; few faint thin discontinuous clay films; gradual smooth boundary.
B3	32 to 40 inches. Yellowish red (5YR 5/6) light silty clay loam; weak fine and medium subangular blocky structure; friable; contains about 15 percent weathered granite gneiss; few faint discontinuous clay films; gradual irregular boundary.
C	40 to 75 inches plus. Variegated strong brown, yellowish brown, light gray loamy soil material.

CHESTER LOAM (13,17,P,a and b)

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      WEIGHT  PERCENT  AND  VOLUME  PERCENT  OF  WATER  RETAINED

IDENTIFICATION          T E N S I O N S  (BARS)
                                                                   BD        TP         K
13   17    1    1      .1        .3        .6        3.        15.       G/CC      PCT       IN/HR

      DEPTH                                                               1
       0              31.11     23.96     20.96     19.80     10.40     1.36      48.68       .74
                      42.30     32.58     28.50     26.92     14.14     1.41      46.79      1.15
                      FRAGMENT  23.48                  SIEVED   8.36ROCK PERCENT   2.52
                                                                          1
       7              39.47     35.84     34.02     31.27     25.78     1.25      52.83       0
                      49.33     44.80     42.52     39.08     32.22     1.38      47.92       .07
                      FRAGMENT  34.24                  SIEVED  23.24ROCK PERCENT
                                                                          1
      19              42.80     35.46     33.66     30.45     25.49     1.20      54.72       .29
                      51.36     42.55     40.39     36.54     30.58     1.35      49.06       .25
                      FRAGMENT  37.95                  SIEVED  21.17ROCK PERCENT   2.17
                                                                          1
      31              45.37     31.68     26.66     22.39     16.83     1.36      48.68       .20
                      61.70     43.08     36.25     30.45     22.88     1.47      44.53       .21
                      FRAGMENT  28.71                  SIEVED  14.50ROCK PERCENT   1.57
                                                                          1
      39              45.45     28.10     18.82     14.39      8.73     1.38      47.92       .40
                      62.72     38.77     25.97     19.85     12.04     1.41      46.79       .67
                      FRAGMENT  27.85                  SIEVED   8.70ROCK PERCENT  12.00

IDENTIFICATION          T E N S I O N S  (BARS)
                                                                   BD        TP         K
13   17    1    2      .1        .3        .6        3.        15.       G/CC      PCT       IN/HR

      DEPTH                                                               1
       0              29.24     22.88     19.09     18.72     10.04     1.27      52.08       .47
                      37.13     29.05     24.24     23.77     12.75     1.35      49.06       .26
                      FRAGMENT  25.45                  SIEVED   8.24ROCK PERCENT   6.35
                                                                          1
       8              26.99     22.96     21.37     19.52     13.26     1.49      43.77       0
                      40.21     34.21     31.84     29.08     19.75     1.55      41.51
                      FRAGMENT  23.55                  SIEVED  11.17ROCK PERCENT
                                                                          1
      10              32.60     29.41     26.44     25.78     21.83     1.37      48.30      1.24
                      44.66     40.29     36.22     35.31     29.90     1.48      44.15       .10
                      FRAGMENT  28.23                  SIEVED  18.46ROCK PERCENT   4.35
                                                                          1
      18              35.11     31.25     28.45     27.43     22.44     1.33      49.81       .21
                      46.69     41.56     37.83     36.48     29.84     1.42      46.42       .46
                      FRAGMENT  28.80                  SIEVED  20.26ROCK PERCENT   3.30
                                                                          1
      32              38.49     28.00     27.39     23.67     16.32     1.37      48.30       .06
                      52.73     38.36     37.52     32.42     22.35     1.46      44.91       .10
                      FRAGMENT  27.28                  SIEVED  16.39ROCK PERCENT   6.28
                                                                          1
      40              35.56     22.56     17.36     11.64      8.42     1.34      49.43       .46
                      47.65     30.23     23.26     15.59     11.28     1.40      47.17       .68
                      FRAGMENT  23.16                  SIEVED   7.11ROCK PERCENT  24.37


         1=FIST
         2=CORE
         3=LOOSE
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GLENELG LOAM (13,18,P,a and b)

Location: Floyd Co., Brush Creek Watershed, on Smith Farm, 100' W of road fence, 1400' S of old Rifton School along #608.
Vegetation and land use: Pasture
Topography: Sloping
Drainage: Well drained
Parent Material: Micaceous granite gneiss
Described and sampled by: C. N. Judy and G. P. Lawless

Horizon	Description
Pit a	
Ap	0 to 5 inches. Dark yellowish brown (10YR 4/4) loam; weak fine and moderate granular structure; friable; many fine roots; clear smooth boundary.
B1	5 to 7.5 inches. Yellowish brown (10YR 5/4) heavy loam; weak fine subangular blocky structure; friable; few finely divided mica flakes; fine roots common; gradual smooth boundary.
B2t	7.5 to 17 inches. Strong brown (7.5YR 5/6) silty clay loam; weak fine and medium subangular blocky structure; friable; slightly sticky; contains about 5-10 percent finely divided mica flakes; fine roots common; many fine and medium pores; gradual smooth boundary.
B3	17 to 25 inches. Strong brown (7.5YR 5/6) light silty clay loam; weak fine subangular blocky structure; friable; slick feel due to mica; 15-20 percent finely divided mica flakes; few fine roots; many fine medium pores; gradual wavy boundary.
C1	25 to 36 inches. Strong brown loamy soil material; an occasional fine root; contains 20 to 25 percent finely divided mica flakes; gradual wavy boundary.
C2	36 to 70 inches. Strong brown, brownish yellow, light gray, and dark brown highly weathered micaceous gneiss; slick feel due to mica.
Pit b	
Ap	0 to 7 inches. Dark yellowish brown (10YR 4/4) loam; weak fine and moderate granular structure; friable; many fine roots; clear smooth boundary.
B2t	7 to 20 inches. Strong brown (7.5YR 5/6) silty clay loam; weak fine and medium subangular blocky structure; friable; slightly sticky; faint patchy clay films; 5 to 10 percent finely divided mica flakes; fine roots common; many fine and medium pores; gradual smooth boundary.
B3	20 to 30 inches. Strong brown (7.5YR 5/6) light silty clay loam; weak fine subangular blocky structure; friable; slick feel due to mica; 15-20 percent finely divided mica flakes; few fine roots; many fine medium pores; gradual wavy boundary.
C1	30 to 41 inches. Strong brown loamy soil material; an occasional fine root; contains 20-25 percent finely divided mica flakes; gradual wavy boundary.
C2	41 to 65 inches plus. Strong brown, brownish yellow, light gray and dark brown highly weathered micaceous gneiss; material is easily dug out by pick.

BLACKSBURG, VIRGINIA

GLENELG LOAM (13,18,P,a and b)

WEIGHT PERCENT AND VOLUME PERCENT OF WATER RETAINED

IDENTIFICATION 13 18 1 1	TENSIONS (BARS) .1	.3	.6	3.	15.	BD G/CC	TP PCT	K IN/HR
DEPTH						1		
0	31.96	23.61	23.14	19.40	11.15	1.46	44.91	.60
	46.66	34.47	33.78	28.32	16.27	1.54	41.89	.04
	FRAGMENT	23.46		SIEVED	14.92ROCK	PERCENT	18.65	
						1		
5	30.93	22.68	21.05	19.13	11.76	1.40	47.17	2.35
	43.30	31.75	29.47	26.78	16.46	1.48	44.15	.04
	FRAGMENT	24.44		SIEVED	10.93ROCK	PERCENT	6.25	
						1		
7	35.77	26.10	24.66	22.38	15.64	1.37	48.30	.57
	49.00	35.75	33.78	30.66	21.42	1.51	43.02	.12
	FRAGMENT	27.09		SIEVED	13.96ROCK	PERCENT	7.77	
						1		
17	38.29	26.39	24.08	19.67	12.13	1.29	51.32	.10
	49.39	34.04	31.06	25.37	15.64	1.38	47.92	.11
	FRAGMENT	27.80		SIEVED	10.32ROCK	PERCENT	3.40	
						1		
25	30.50	20.79	18.93	15.84	12.34	1.45	45.28	.29
	44.22	30.14	27.44	22.96	17.89	1.50	43.40	.34
	FRAGMENT	21.64		SIEVED	9.19ROCK	PERCENT	11.61	
						1		
36	28.48	18.25	16.73	11.78	7.84	1.44	45.66	.28
	41.01	26.28	24.09	16.96	11.28	1.50	43.40	.36
	FRAGMENT	19.24		SIEVED	9.17ROCK	PERCENT	23.39	
						1		
46	31.44	18.26	14.55	8.69	6.34	1.35	49.06	1.11
	42.44	24.65	19.64	11.73	8.55	1.40	47.17	1.25
	FRAGMENT	21.35		SIEVED	6.57ROCK	PERCENT	6.44	

IDENTIFICATION 13 18 1 2	TENSIONS (BARS) .1	.3	.6	3.	15.	BD G/CC	TP PCT	K IN/HR
DEPTH						1		
0	30.28	23.03	22.05	17.43	11.66	1.43	46.04	.40
	43.30	32.93	31.53	24.92	16.67	1.53	42.26	3.66
	FRAGMENT	25.54		SIEVED	13.51ROCK	PERCENT	14.88	
						1		
7	35.11	26.90	25.33	21.42	13.55	1.32	50.19	.19
	46.34	35.50	33.43	28.27	17.88	1.46	44.91	.40
	FRAGMENT	27.27		SIEVED	13.61ROCK	PERCENT	39.75	
						1		
20	37.41	26.57	23.24	19.17	12.75	1.33	49.81	.20
	49.75	35.33	30.90	25.49	16.95	1.41	46.79	.49
	FRAGMENT	24.89		SIEVED	10.61ROCK	PERCENT	5.56	
						1		
30	30.45	17.56	15.85	11.30	6.67	1.38	47.92	.22
	42.02	24.23	21.87	15.59	9.20	1.43	46.04	2.72
	FRAGMENT	17.92		SIEVED	5.64ROCK	PERCENT	12.20	
						1		
41	29.49	16.49	12.83	9.04	5.30	1.41	46.79	.65
	41.58	23.25	18.09	12.74	7.47	1.47	44.53	.60
	FRAGMENT	17.89		SIEVED	5.00ROCK	PERCENT	5.92	

1=FIST
2=CORE
3=LOOSE

BRANDYWINE LOAM (13,19,I,a and b)

Location: Floyd Co., Brush Creek Watershed, on steep slope 200' S of #672, 50' below telephone line, 2300' W of junction of #672 and #612 (pits are 20' apart on same contour).
Vegetation and land use: Idle
Topography: Steep
Drainage: Excessively drained
Parent Material: Dark colored schist
Described and sampled by: C. N. Judy and G. P. Lawless

Horizon	Description
Pit a	
Ap	0 to 7 inches. Brown to dark brown (10YR 4/3) loam; weak fine granular structure; very friable; few finely divided mica flakes; 3 percent dark colored schist fragments 1/4-3/8 inch in diameter; many fine roots; gradual wavy boundary.
C1	7 to 16 inches. Yellowish brown (10YR 5/6) to dark yellowish brown (10YR 4/4) silt loam to heavy silt loam; weak fine granular and weak fine subangular blocky structure; friable; non-sticky; few finely divided mica flakes; contains 15-20 percent partly weathered dark colored schist fragments up to 4 in. in length; many fine and medium pores; fine roots common; gradual wavy boundary.
C2	16 to 24 inches. Dark colored highly weathered schist; contains many mica flakes; contains streaks of dark brown to strong brown silty soil material. Soil material makes up 15-20 percent of this layer; occasional fine roots throughout this horizon.
R	24 inches plus. Partly weathered dark colored schist, very difficult to dig out with spade.
Pit b	
Ap	0 to 6 inches. Dark brown (10YR 3/4) loam; weak fine granular structure; very friable; few finely divided mica flakes; 3 percent dark colored schist fragments 1/4-3/8 inch in diameter; many fine roots; occasional medium-sized roots; gradual wavy boundary.
C	6 to 26 inches. Dark colored, highly weathered schist; contains many mica flakes; contains streaks of dark yellowish brown silty soil material. Soil material makes up 20-30 percent of this horizon; fine roots common, occasional medium roots.
R	26 inches plus. Partly weathered dark colored schist, cannot be dug out with spade.

BRANDYWINE LOAM (13,19,I,a and b)

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     WEIGHT  PERCENT  AND  VOLUME  PERCENT  OF  WATER  RETAINED

IDENTIFICATION        T E N S I O N S  (BARS)
                                                                 BD       TP       K
13   19   4   1     .1        .3        .6        3.        15.       G/CC      PCT     IN/HR

    DEPTH                                                          1
     0             37.87     31.57     26.16     24.47     13.92     1.15     56.60     2.56
                   43.55     36.30     30.08     28.14     16.00     1.23     53.58     1.27
                   FRAGMENT  31.94                 SIEVED 10.97ROCK PERCENT   9.43
                                                                      1
     7             31.32     26.99     22.85     22.27     14.23     1.31     50.57      .10
                   41.02     35.35     29.93     29.17     18.64     1.42     46.42      .21
                   FRAGMENT  28.25                 SIEVED 11.32ROCK PERCENT  19.04
                                                                      1
    16             25.66     19.82     15.44     14.41     11.92     1.37     48.30      .24
                   35.15     27.15     21.15     19.74     16.33     1.49     43.77      .25
                   FRAGMENT  20.19                 SIEVED 14.28ROCK PERCENT

IDENTIFICATION        T E N S I O N S  (BARS)
                                                                 BD       TP       K
13   19   4   2     .1        .3        .6        3.        15.       G/CC      PCT     IN/HR

    DEPTH                                                          1
     0             33.87     25.92     20.19     19.54     11.02     1.09     58.87      .33
                   36.91     28.25     22.00     21.29     12.01     1.18     55.47     1.22
                   FRAGMENT  28.46                 SIEVED 10.25ROCK PERCENT  10.48
                                                                      1
     6             25.23     20.97     18.57     16.74      7.66     1.31     50.57     1.06
                   33.05     27.47     24.32     21.92     10.03     1.41     46.79      .06
                   FRAGMENT  19.12                 SIEVED 11.48ROCK PERCENT  42.84

          1=FIST
          2=CORE
          3=LOOSE
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APPLING FINE SANDY LOAM (13,20,I,a and b)

Location: Halifax Co., Little Winn's Creek Watershed, under power line on Ada Wade's place; .38 mi. W junction 768 and 751, then .25 mi. S.
Vegetation and land use: Idle; weeds, broomsedge, scattered pine seedlings.
Topography: Gently sloping
Drainage: Well drained
Parent Material: Granite gneiss and schist
Described and sampled by: K. Fussell and G. P. Lawless

Horizon	Description
Pit a	
Ap	0 to 5 inches. Yellowish brown (10YR 5/4) fine sandy loam with common fine distinct mottles of yellowish red (5YR 5/6); very friable; weak fine to medium granular structure; few fine roots; numerous angular quartz fragments less than 1 inch in diameter; strongly acid; abrupt wavy boundary.
B22	5 to 16 inches. Yellowish red (5YR 5/6) with common fine faint mottles of yellowish red (5YR 4/8) clay; firm; moderate medium angular and subangular blocky structure; thin patchy clay films on face of most peds; few fine roots; strongly acid; clear wavy boundary.
B23	16 to 23 inches. Yellowish red (5YR 5/6 and 5/8) with few fine distinct mottles of light yellowish brown (10YR 6/4) clay loam; friable; moderate medium angular and subangular blocky structure; thin patchy clay films on face of peds; some mica flakes; few fine roots; strongly acid; light yellowish brown mottles appear more sandy than the yellow-red peds; few small quartz rocks less than 1/2 inch in diameter; clear wavy boundary.
B3	23 to 43 inches. Yellowish red (10YR 5/8 and 5/6) with many medium distinct mottles of red (2.5YR 5/6) and pale brown (10YR 6/3) light clay loam; friable; weak medium angular and subangular blocky structure; many fine mica flakes; slick and greasy to feel; few fine roots; strongly acid; clear wavy boundary.
C	43 to 67 inches plus. Mottled colors of yellowish red (5YR 5/6), reddish yellow (7.5YR 6/6) and red (2.5YR 5/8) loam; very friable; structureless; highly weathered granite gneiss and schist.
Pit b	
Ap	0 to 5 inches. Yellowish brown (10YR 5/4) fine sandy loam with common fine distinct mottles of yellowish red (5YR 5/6); very friable; weak fine granular structure; many fine roots; strongly acid; common angular quartz rock less than 2 inches in diameter; abrupt smooth boundary.
B22	5 to 19 inches. Yellowish red (5YR 5/6) clay with few medium distinct mottles of yellowish brown (10YR 5/6) and red (2.5YR 5/6); firm; moderate medium angular and subangular blocky structure; thin patchy clay films on surface of peds; few fine roots; few fine mica flakes; strongly acid; clear wavy boundary.
B23	19 to 30 inches. Yellowish red (5YR 5/6) with common medium distinct mottles of brownish yellow (10YR 6/8) and yellow (10YR 7/6) clay loam; friable; thin patchy clay films on surface of a few yellowish red peds; few fine roots in upper 6 in.; few small mica flakes; strongly acid; gradual wavy boundary.
B3	30 to 51 inches. Strong brown (7.5YR 5/6) with common coarse distinct mottles of white (10YR 8/2) and yellow (10YR 7/6) and yellowish red (5YR 5/8) loam; very friable; weak fine subangular blocky and weak coarse granular structure; few fine mica flakes; strongly acid; gradual wavy boundary.
C	51 to 65 inches plus. Mottled colors of white (10YR 8/2), yellow (10YR 7/8), strong brown (10YR 5/6), reddish yellow (7.5YR 6/8) heavy fine sandy loam or light loam; structureless; highly weathered granite gneiss and schist.

APPLING FINE SANDY LOAM (13,20,I,a and b)

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     WEIGHT  PERCENT  AND  VOLUME  PERCENT  OF  WATER  RETAINED
IDENTIFICATION          T E N S I O N S  (BARS)
                                                                BD        TP       K
13  20   4   1     .1        .3        .6        3.        15.      G/CC      PCT    IN/HR

    DEPTH                                                        1
     0            24.26     22.08     19.62     16.66     14.60    1.67     36.98     .80
                  40.51     36.87     32.76     27.82     24.38    1.75     33.96     .04
                  FRAGMENT  21.22                 SIEVED 12.76ROCK PERCENT 28.62
                                                                 1
     5            38.85     34.53     32.63     31.39     28.84    1.27     52.08      0
                  49.33     43.85     41.44     39.86     36.62    1.44     45.66     .05
                  FRAGMENT  32.41                 SIEVED 26.98ROCK PERCENT 27.89
                                                                 1
    16            38.53     32.39     30.16     26.92     22.68    1.28     51.70     .26
                  49.31     41.45     38.60     34.45     29.03    1.39     47.55      0
                  FRAGMENT  32.30                 SIEVED 23.55ROCK PERCENT  8.20
                                                                 1
    23            39.49     29.20     23.83     19.99     15.31    1.28     51.70     .17
                  50.54     37.37     30.50     25.58     19.59    1.33     49.81     .35
                  FRAGMENT  28.09                 SIEVED 14.65ROCK PERCENT  8.00
                                                                 1
    43            37.77     28.20     21.31     17.72     12.44    1.25     52.83     .15
                  47.21     35.25     26.63     22.15     15.55    1.27     52.08     .24
                  FRAGMENT  27.00                 SIEVED 10.26ROCK PERCENT


IDENTIFICATION          T E N S I O N S  (BARS)
                                                                BD        TP       K
13  20   4   2     .1        .3        .6        3.        15.      G/CC      PCT    IN/HR

    DEPTH                                                        1
     0            18.64     16.27     13.59     12.66      8.56    1.42     46.42    1.09
                  26.46     23.10     19.29     17.97     12.15    1.51     43.02     .45
                  FRAGMENT  15.21                 SIEVED 10.56ROCK PERCENT 39.86
                                                                 1
     5            28.12     26.38     25.86     23.52     21.67    1.41     46.79     .13
                  39.64     37.19     36.46     33.16     30.55    1.54     41.89     .02
                  FRAGMENT  26.17                 SIEVED 19.44ROCK PERCENT
                                                                 1
    19            32.02     27.90     25.85     25.00     18.02    1.43     46.04     .08
                  45.78     39.89     36.96     35.75     25.76    1.49     43.77     .12
                  FRAGMENT  27.97                 SIEVED 18.18ROCK PERCENT 26.75
                                                                 1
    30            29.25     23.31     17.92     17.49     15.00    1.43     46.04    1.03
                  41.82     33.33     25.62     25.01     21.45    1.48     44.15     .11
                  FRAGMENT  22.18                 SIEVED 18.71ROCK PERCENT 16.12
                                                                 1
    51            27.48     22.41     17.43     14.68     13.06    1.26     52.45     .20
                  34.62     28.23     21.96     18.49     16.45    1.32     50.19     .51
                  FRAGMENT  21.43                 SIEVED 15.82ROCK PERCENT  2.69


       1=FIST
       2=CORE
       3=LOOSE
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CECIL FINE SANDY LOAM (13,21,C,a and b)

Location: Halifax Co., Little Winn's Creek Watershed, on the Thomas farm near power line; about 400' SW of a point on #751 about 1000' NW of the junction of #751 and #699.
Vegetation and land use: Weeds and clover
Topography: Gently sloping
Drainage: Well drained
Parent Material: Mica schist
Described and sampled by: K. Fussell and G. P. Lawless

Horizon	Description
Pit a	
Ap	0 to 7 inches. Yellowish brown (10YR 5/4) with peds of red (2.5YR 4/6) very fine sandy loam; very friable; weak fine granular structure; many fine roots; medium acid (field application of lime 1961); abrupt smooth boundary.
B22	7 to 17 inches. Red (2.5YR 4/6) firm clay; moderate medium subangular blocky structure; thin patchy clay films on most peds; few fine mica flakes; common fine roots; strongly acid; clear wavy boundary.
B23	17 to 33 inches. Red (2.5YR 4/6) light clay or heavy clay loam with few fine faint mottles of yellowish red (5YR 5/6); friable; moderate medium and fine subangular blocky structure; thin patchy clay films on most peds; common fine mica flakes; when rubbed between fingers several times slick and greasy to feel; few fine roots; strongly acid; clear wavy boundary.
B3	33 to 58 inches. Red (10YR 4/6) clay loam with few fine distinct mottles of yellowish brown (10YR 5/6); friable; moderate medium and fine subangular blocky structure; thin patchy clay films on face of few peds; many mica flakes; slick and greasy to the feel; strongly acid; clear wavy boundary.
C	58 to 87 inches plus. Dark red (10YR 3/6) and red (2.5YR 4/6) yellowish red (5YR 5/6) highly weathered mica schist of silt loam texture; very slick and greasy to the feel; also few small pockets of soil material with silt loam texture.
Pit b	
Ap	0 to 8 inches. Yellowish red (5YR 5/6) fine sandy loam with few peds of red (2.5YR 4/6); very friable; weak fine and medium granular structure; many fine roots; medium acid (field application of lime 1961); occasional angular quartz rock less than 2 inches in diameter; abrupt wavy boundary.
B22	8 to 22 inches. Red (2.5YR 4/6) firm clay; moderate medium subangular blocky structure; thin clay films on face of peds; few small mica flakes; many fine roots; medium acid; clear wavy boundary.
B23	22 to 37 inches. Red (2.5YR 4/6) light clay; firm; moderate medium angular and subangular blocky structure; thin clay films on the surface of peds; some clay films are a yellowish red (5YR 5/6) color; few mica flakes becoming more prevalent in lower 2 in.; strongly acid; gradual wavy boundary.
B3	37 to 55 inches. Red (2.5YR 4/6) with common fine faint mottles of dark red (2.5YR 3/6) and few fine prominent mottles of yellowish brown (10YR 5/6) light clay loam; friable; thin patchy clay films on surface of most peds; many mica flakes giving a slick and greasy feel when rubbed between fingers; few highly weathered mica schist fragments; several layers of angular quartz rock less than 1 inch in diameter in lower part of horizon (quartz vein); strongly acid; gradual wavy boundary.
C	55 to 72 inches plus. Mottled red (2.5YR 4/6), yellowish red (5YR 5/6), dark red (2.5YR 3/6), reddish yellow (5YR 6/8); highly weathered mica schist of silt loam texture; very slick and greasy to the feel; also few small pockets of soil material with silt loam texture.

BLACKSBURG, VIRGINIA

CECIL FINE SANDY LOAM (13,21,C,a and b)

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      WEIGHT  PERCENT  AND  VOLUME  PERCENT  OF  WATER  RETAINED

IDENTIFICATION       T E N S I O N S  (BARS)
                                                                 BD        TP       K
13  21   2   1      .1        .3        .6        3.        15.       G/CC      PCT     IN/HR

     DEPTH                                                          1
      0             12.56      9.61      7.61      6.34      6.19     1.39     47.55    1.00
                    17.45     13.35     10.57      8.81      8.60     1.54     41.89    1.24
                    FRAGMENT   9.94                 SIEVED   4.70ROCK PERCENT  6.51
                                                                    1
      7             36.30     32.23     31.69     27.74     26.75     1.40     47.17     .02
                    50.82     45.12     44.36     38.83     37.45     1.56     41.13     .34
                    FRAGMENT  30.63                 SIEVED  25.12ROCK PERCENT
                                                                    1
     17             40.35     36.30     33.91     31.12     28.40     1.29     51.32     .46
                    52.05     46.82     43.74     40.14     36.63     1.42     46.42     .18
                    FRAGMENT  33.79                 SIEVED  30.73ROCK PERCENT    .18
                                                                    1
     33             36.84     29.83     26.97     24.00     19.44     1.45     45.28     .24
                    53.41     43.25     39.10     34.80     28.18     1.54     41.89     .67
                    FRAGMENT  26.87                 SIEVED  21.39ROCK PERCENT   4.58
                                                                    1
     58             37.74     26.66     21.13     17.99     12.60     1.25     52.83     .35
                    47.17     33.32     26.41     22.48     15.75     1.33     49.81     .76
                    FRAGMENT  23.46                 SIEVED   9.64ROCK PERCENT


IDENTIFICATION       T E N S I O N S  (BARS)
                                                                 BD        TP       K
13  21   2   2      .1        .3        .6        3.        15.       G/CC      PCT     IN/HR

     DEPTH                                                          1
      0             18.34     16.46     13.58     11.88      7.77     1.29     51.32     .28
                    23.65     21.23     17.51     15.32     10.02     1.42     46.42     .88
                    FRAGMENT  13.05                 SIEVED   9.27ROCK PERCENT 18.34
                                                                    1
      8             37.01     34.26     32.36     31.42     29.22     1.32     50.19     .07
                    48.85     45.22     42.71     41.47     38.57     1.43     46.04     .49
                    FRAGMENT  31.11                 SIEVED  28.31ROCK PERCENT 28.55
                                                                    1
     22             34.70     30.93     29.34     27.08     24.01     1.45     45.28     .13
                    50.31     44.84     42.54     39.26     34.81     1.53     42.26     .24
                    FRAGMENT  26.54                 SIEVED  31.84ROCK PERCENT 22.30
                                                                    1
     37             39.15     28.87     27.48     22.37     18.38     1.43     46.04     .06
                    55.98     41.28     39.29     31.98     26.28     1.53     42.26     .09
                    FRAGMENT  26.65                 SIEVED  19.61ROCK PERCENT 19.08
                                                                    1
     55             41.86     25.84     22.03     18.63     14.97     1.24     53.21     .17
                    51.90     32.04     27.31     23.10     18.56     1.35     49.06     .31
                    FRAGMENT  26.61                 SIEVED  11.55ROCK PERCENT 27.10

     1=FIST
     2=CORE
     3=LOOSE
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WILKES FINE SANDY LOAM (13,22,I, a and b)

Location: Halifax Co., Little Winn's Creek Watershed, near house of Henry Carter, 1500' E of a point on #779 about 1/4 mi. S of #58-779 junction; pits 30' apart E-W.
Vegetation and land use: Grass, weeds
Topography: Strongly sloping
Drainage: Excessively drained
Parent Material: Mixed basic rock (hornblende) and acidic rock (granite biotite mica)
Described and sampled by: K. Fussell and J. B. Burford

Horizon	Description
Pit a	
Ap	0 to 7 inches. Dark grayish brown (10YR 4/2) fine sandy loam; very friable; weak medium granular structure; common angular quartz rock less than 2 in. in diameter; many soft white feldspar particles; many fine roots; slightly acid; abrupt wavy boundary.
C	7 to 60 inches. Yellowish brown (10YR 5/4), white (10YR 8/1), black (10YR 2/1), grayish brown (10YR 5/2), brownish yellow (10YR 6/8) fine sandy loam; very friable; rock structure with numerous rock fragments of light and dark colors; few thin quartz veins nearly horizontal with the surface; few fine roots in upper 11 inches.
Pit b	
Ap	0 to 4 inches. Dark grayish brown (10YR 4/2) fine sandy loam; very friable; weak fine and medium granular structure; numerous angular quartz rock less than 1 inch in diameter; many fine roots; slightly acid; abrupt wavy boundary.
B	4 to 7 inches. Brown (10YR 5/3) loam; friable; weak fine subangular blocky and weak coarse granular structure; few fine roots; many quartz rock and other light and dark colored fragments, mostly less than 1/2 in. in diameter; few mica flakes; slightly acid; abrupt wavy boundary.
C	7 to 60 inches. Weathered light and dark colored rock; much quartz rock in upper 12 in.; granite and biotite mica make up most of acidic rock and horneblende most of the basic rock; few fine roots in upper 9 inches.

BLACKSBURG, VIRGINIA

WILKES FINE SANDY LOAM (13,22,I,a and b)

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      WEIGHT  PERCENT  AND  VOLUME  PERCENT  OF  WATER  RETAINED

IDENTIFICATION        T E N S I O N S  (BARS)
                                                                BD        TP      K
13  22   4   1     .1       .3       .6       3.       15.     G/CC      PCT    IN/HR

    DEPTH                                                          1
      0            23.46    12.66    10.67    6.77     5.79     1.22     53.96    .37
                   28.62    15.44    13.01    8.25     7.06     1.38     47.92    .60
                   FRAGMENT 14.64              SIEVED  6.55ROCK PERCENT 36.58
                                                                   1
      7            18.38    10.95     9.86    8.33     5.55     1.54     41.89    .37
                   28.30    16.86    15.18   12.82     8.54     1.68     36.60   1.25
                   FRAGMENT 12.29              SIEVED  5.95ROCK PERCENT 55.93


IDENTIFICATION        T E N S I O N S  (BARS)
                                                                BD        TP      K
13  22   4   2     .1       .3       .6       3.       15.     G/CC      PCT    IN/HR

    DEPTH                                                          1
      0            24.74    13.93    11.53    7.48     5.17     1.52     42.64    .75
                   37.60    21.17    17.52   11.36     7.85     1.66     37.36   1.27
                   FRAGMENT 17.23              SIEVED  4.62ROCK PERCENT 17.25
                                                                   1
      4            25.75    14.46    11.76    8.87     7.16     1.55     41.51    .36
                   39.91    22.41    18.22   13.74    11.09     1.65     37.74    .18
                   FRAGMENT 14.50              SIEVED  6.56ROCK PERCENT 22.11
                                                                   1
      7            11.74     8.13     7.46    5.21     4.62     1.56     41.13    .24
                   18.31    12.68    11.63    8.12     7.20     1.69     36.23     0
                   FRAGMENT  6.82              SIEVED  4.68ROCK PERCENT 46.09

      1=FIST
      2=CORE
      3=LOOSE
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APPLING COARSE SANDY LOAM (13,23,F,a)

Location: Brunswick Co., Rocky Run Branch Watershed, in timber approx. 100 yds. S of pit no. 13,23,I,b, 10' SW of dirt road.
Vegetation and land use: Mixed pine and hardwood forest
Topography: Gently sloping
Drainage: Well drained
Parent Material: Granite gneiss and schist
Described and sampled by: K. Fussell, J. Williams, J. B. Burford

Horizon	Description
O	1/2 to 0 inch. Leaves, rotted leaves and twigs, and root mat.
A1	0 to 2 inches. Dark grayish brown (10YR 4/2) gritty sandy loam; very friable; weak fine granular structure; profuse roots; medium acid; abrupt smooth boundary.
A2	2 to 8 inches. Yellowish brown (10YR 5/4) gritty sandy loam; very friable; weak fine and medium granular structure; many roots; slightly acid; abrupt wavy boundary.
B1	8 to 10 inches. Strong brown (7.5YR 5/6) gritty clay loam; weak fine subangular blocky structure; friable; strongly acid; common roots; abrupt wavy boundary.
B22t	10 to 28 inches. Yellowish red (5YR 5/6) clay with common fine faint mottles of red (2.5YR 4/8) and strong brown (7.5YR 5/6), few fine distinct mottles of brownish yellow (10YR 6/6); firm; moderate medium blocky and subangular blocky structure; thin clay film on most ped faces; common mostly fine roots in upper 12 inches, few in lower 6 inches; few mica flakes; strongly acid; gradual smooth boundary.
B23t	28 to 36 inches. Yellowish red (5YR 5/8) mottled with many fine faint mottles of red (2.5YR 4/8) and strong brown (7.5YR 5/6), many fine distinct mottles of brownish yellow (10YR 6/8), white (10YR 8/2), and yellowish brown (10YR 5/8) clay loam; friable; moderate medium and fine subangular blocky structure; thin clay film on face of most peds; few mica flakes; few fine roots; strongly acid; gradual wavy boundary.
B3	36 to 53 inches. Yellowish red (5YR 5/8) with medium faint mottles of red (2.5YR 4/8) and strong brown (7.5YR 5/6), medium distinct mottles of brownish yellow (10YR 6/8), white (10YR 8/2), and yellowish brown (10YR 5/8) light clay loam; friable; weak fine and medium subangular blocky structure; thin patchy clay film; many mica flakes, slick and greasy to feel; very strongly acid; gradual wavy boundary.
C	53 to 66 inches plus. Mottled colors of yellowish red (5YR 5/8), red (2.5YR 4/8), strong brown (7.5YR 5/6), brownish yellow (10YR 6/8), white (10YR 8/2), and yellowish brown (10YR 5/8) silt loam; granite gneiss and schist rock material, mostly schist.

BLACKSBURG, VIRGINIA

APPLING COARSE SANDY LOAM (13,23,F,a)

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        WEIGHT  PERCENT  AND  VOLUME  PERCENT  OF  WATER  RETAINED

IDENTIFICATION        T E N S I O N S  (BARS)
                                                                 BD        TP        K
13  23   3   1      .1        .3        .6        3.        15.        G/CC      PCT     IN/HR

     DEPTH                                                                  1
       0           31.09     25.67     18.04     16.36     14.92     1.28      51.70      .78
                   39.79     32.85     23.09     20.94     19.09     1.44      45.66     1.11
                   FRAGMENT  28.06               SIEVED 11.17ROCK PERCENT 20.45
                                                                            1
       2           15.52     12.63      9.47      8.29      4.77     1.63      38.49      .70
                   25.29     20.58     15.43     13.51      7.77     1.69      36.23     1.26
                   FRAGMENT  13.86               SIEVED  3.80ROCK PERCENT 24.25
                                                                            1
       8           16.23     12.60      9.59      8.71      6.61     1.70      35.85      .32
                   27.59     21.42     16.30     14.80     11.23     1.77      33.21      .51
                   FRAGMENT  12.74               SIEVED  6.41ROCK PERCENT 25.27

       1=FIST
       2=CORE
       3=LOOSE
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APPLING COARSE SANDY LOAM (13,23,F,b)

Location: Brunswick Co., Rocky Run Branch Watershed, in timber approx. 100 yds. S of pit no. 13,23,I,b, 30' SW of dirt road.
Vegetation and land use: Mixed pine and hardwood forest
Topography: Gently sloping
Drainage: Well drained
Parent Material: Granite gneiss and schist
Described and sampled by: K. Fussell, J. Williams, J. B. Burford

Horizon	Description
0	1/2 to 0 inch. Leaves, rotted leaves and twigs, and root mat.
A1	0 to 2 inches. Dark grayish brown (10YR 4/2) sandy loam with inclusions of yellowish brown (10YR 5/4) brought up from A2 horizon; gritty; very friable; weak fine granular structure; many roots; medium acid; abrupt wavy boundary.
A2	2 to 10 inches. Yellowish brown (10YR 5/4) sandy loam with inclusions of dark grayish brown (10YR 4/2) brought down from A1 horizon by roots; gritty; very friable; weak fine granular structure; occasional angular quartz rock less than 4 in. in diameter; many roots; medium acid; abrupt smooth boundary.
B1	10 to 12 inches. Strong brown (7.5YR 5/8) clay loam; gritty; friable; weak fine subangular blocky structure; occasional angular quartz rock less than 1 in. in diameter; common roots; strongly acid; abrupt smooth boundary.
B22t	12 to 24 inches. Yellowish red (5YR 5/8) with few fine faint mottles of red (2.5YR 4/8) and common medium distinct mottles of reddish yellow (10YR 6/8) clay; firm; moderate medium and fine subangular blocky structure; thin continuous clay films over ped faces; few fine mica flakes; common fine roots; occasional pockets of grit mixed with clay; strongly acid; clear wavy boundary.
B23t	24 to 33 inches. Yellowish red (5YR 5/6) with few fine mottles of red (2.5YR 4/8) and strong brown (7.5YR 5/6) and many medium distinct mottles of brownish yellow (10YR 6/8) clay loam; friable; moderate medium and fine subangular blocky structure; thin clay films on surface of most peds; few fine mica flakes; common fine roots; occasional pockets of grit mixed with clay loam; strongly acid; clear wavy boundary.
B3	33 to 48 inches. Yellowish red (5YR 5/6) with few fine faint mottles of red (2.5YR 4/8) and strong brown (7.5YR 5/6), few fine distinct mottles of yellowish brown (10YR 5/6) and white (10YR 8/2), and many medium distinct mottles of brownish yellow (10YR 6/8) light clay loam; friable; weak fine and medium subangular blocky structure; thin patchy clay films; few fine mica flakes; occasional fine roots; occasional pockets of grit mixed with the light clay loam; very strongly acid; gradual wavy boundary.
C	48 to 63 inches plus. Mottled colors of yellowish red (5YR 5/6), red (2.5YR 4/8), strong brown (7.5YR 5/6), white (10YR 8/2) and brownish yellow (10YR 6/8) loam; granite gneiss and schist.

APPLING COARSE SANDY LOAM (13,23,F,b)

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      WEIGHT  PERCENT  AND  VOLUME  PERCENT  OF  WATER  RETAINED

IDENTIFICATION        T E N S I O N S  (BARS)
                                                                 BD       TP        K
13  23   3   2     .1       .3       .6       3.       15.      G/CC     PCT     IN/HR

    DEPTH                                                           1
     0            31.32    25.56    18.11    18.11     9.12     1.25     52.83      .62
                  39.15    31.95    22.63    22.63    11.40     1.46     44.91     1.05
                  FRAGMENT 28.10              SIEVED   9.70ROCK PERCENT 18.04
                                                                    1
     2             9.89     8.69     7.05     6.34     3.32     1.68     36.60     1.42
                  16.61    14.59    11.84    10.65     5.57     1.77     33.21      .63
                  FRAGMENT 11.71              SIEVED   4.44ROCK PERCENT 41.89
                                                                    1
    10            11.01     9.20     7.07     6.08     3.58     1.74     34.34      .51
                  19.15    16.00    12.30    10.57     6.22     1.82     31.32      .68
                  FRAGMENT 10.07              SIEVED   5.19ROCK PERCENT 45.22

      1=FIST
      2=CORE
      3=LOOSE
```

APPLING COARSE SANDY LOAM (13,23,I,a)

Location: Brunswick Co., Rocky Run Branch Watershed, under power line, S edge of clearing, 300' W of #656.
Vegetation and land use: Idle; small pine seedlings and broom sedge
Topography: Gently sloping
Drainage: Well drained
Parent Material: Granite gneiss and schist
Described and sampled by: K. Fussell, J. Williams, J. B. Burford

Horizon	Description
Ap	0 to 4 inches. Dark grayish brown (10YR 4/2) gritty sandy loam; very friable; weak fine and medium granular structure; many roots; slightly acid; few fine distinct colors of yellowish brown (10YR 5/6) brought up from lower horizon; abrupt wavy boundary.
A2	4 to 6 inches. Yellowish brown (10YR 5/6) gritty sandy loam; very friable; weak fine and medium granular structure; many roots; medium acid; few fine distinct colors of dark grayish brown (10YR 4/2) from Ap horizon; abrupt wavy boundary.
B22t	6 to 18 inches. Yellowish red (5YR 5/6) clay; few fine faint mottles of red (2.5YR 4/8); few fine distinct mottles of light yellowish brown (10YR 6/4); firm; moderate medium subangular blocky and blocky structure; thin patchy clay film on surface of most peds; occasional angular quartz rock less than 1/2 inch in diameter; few fine roots; few mica flakes; strongly acid; gradual smooth boundary.
B23t	18 to 32 inches. Yellowish red (5YR 5/8 and 5/6) clay; many medium faint mottles of strong brown (10YR 5/6); few fine faint mottles of red (2.5YR 4/8); firm; moderate medium subangular blocky and blocky structure; thin patchy clay film on surface of most peds; few mica flakes; few fine roots in upper 3 in.; strongly acid; occasional angular quartz rock less than 1/2 in. in diameter; gradual wavy boundary.
B3	32 to 42 inches. Yellowish red (5YR 5/6) light clay loam with many medium prominent mottles of white (10YR 8/1), yellow (10YR 7/6), brownish yellow (10YR 6/6), yellowish brown (10YR 5/8); few fine faint mottles of red (2.5YR 4/8); friable; moderate fine and medium subangular blocky structure; few patchy clay films; common mica flakes; some angular quartz rocks less than 1/2 in. in diameter; strongly acid; gradual wavy boundary.
C	42 to 73 inches plus. Mottled colors of yellowish red (5YR 5/6 and 5/8), strong brown (7.5YR 5/8), white (10YR 8/2), brownish yellow (10YR 6/6), yellowish brown (10YR 5/8), red (2.5YR 4/8); heavy loam; many small angular quartz rocks less than 1/2 in. in diameter; granite gneiss and schist rock material.

BLACKSBURG, VIRGINIA

APPLING COARSE SANDY LOAM (13,23,I,a)

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      WEIGHT  PERCENT  AND  VOLUME  PERCENT  OF  WATER  RETAINED

IDENTIFICATION        T E N S I O N S  (BARS)
                                                               BD       TP       K
13  23   4   1       .1        .3        .6        3.        15.      G/CC     PCT     IN/HR

     DEPTH                                                                1
      0            22.06     16.47     12.50      8.60      5.58     1.54     41.89    1.27
                   33.97     25.36     19.25     13.24      8.59     1.63     38.49    1.77
                   FRAGMENT  16.20                SIEVED   4.74ROCK PERCENT 39.48
                                                                          1
      4            19.75     15.99     13.68     12.01      7.14     1.71     35.47     .26
                   33.77     27.34     23.39     20.53     12.20     1.80     32.08     .08
                   FRAGMENT  12.62                SIEVED   8.39ROCK PERCENT 25.69
                                                                          1
      6            38.60     33.81     32.57     30.53     28.35     1.31     50.57     .19
                   50.56     44.29     42.66     39.99     37.13     1.62     38.87     .20
                   FRAGMENT  30.17                SIEVED  34.61ROCK PERCENT 24.52
                                                                          1
     18            37.78     36.24     35.22     30.96     21.53     1.27     52.08     .37
                   47.98     46.02     44.72     39.31     27.34     1.39     47.55     .23
                   FRAGMENT  36.55                SIEVED  24.17ROCK PERCENT 23.85
                                                                          1
     32            37.79     33.12     28.80     22.64     15.06     1.22     53.96     .24
                   46.10     40.40     35.13     27.62     18.37     1.33     49.81     .11
                   FRAGMENT  30.51                SIEVED  16.58ROCK PERCENT 23.07
                                                                          1
     42            36.85     33.90     26.20     21.91     15.32     1.30     50.94     .15
                   47.90     44.07     34.06     28.48     19.91     1.43     46.04     .17
                   FRAGMENT  30.72                SIEVED  15.62ROCK PERCENT 29.97

      1=FIST
      2=CORE
      3=LOOSE
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APPLING COARSE SANDY LOAM (13,23,I,b)

Location: Brunswick Co., Rocky Run Branch Watershed, under power line (E-W) 300' W of county road 656 near E boundary of watershed.
Vegetation and land use: Idle; small pine seedlings and broom sedge
Topography: Gently sloping
Drainage: Well drained
Parent Material: Granite gneiss and schist
Described and sampled by: K. Fussell, J. Williams, J. B. Burford

Horizon	Description
A1	0 to 4 inches. Dark grayish brown (10YR 4/2) gritty sandy loam; very friable; weak fine and medium granular structure; many fine roots; very slightly acid; abrupt wavy boundary.
A2	4 to 7 inches. Yellowish brown (10YR 5/6) gritty sandy loam; very friable; weak medium granular structure; common fine roots; very slightly acid; clear wavy boundary.
B22t	7 to 22 inches. Yellowish red (5YR 5/6) clay with common fine faint strong brown (7.5YR 5/6) and red (2.5YR 4/8) mottles, few fine distinct brownish yellow (10YR 6/6) mottles; firm; moderate medium subangular blocky structure; thin continuous clay films; few mica flakes; few angular quartz fragments less than 1/2 in. in diameter; common fine roots; strongly acid; gradual smooth boundary.
B23	22 to 32 inches. Yellowish red (5YR 5/8) clay loam with common medium faint mottles of strong brown (7.5YR 5/6) and red (2.5YR 5/8), many fine distinct mottles of yellowish brown (10YR 5/8), white (10YR 8/2), and brownish yellow (10YR 6/6); firm; moderate medium blocky and subangular blocky structure; thin patchy clay films; few mica flakes; few small angular quartz rocks less than 1/2 inch in diameter; few fine roots; strongly acid; gradual wavy boundary.
B3	32 to 50 inches. Mottled colors of yellowish red (5YR 5/6 and 5/8), strong brown (7.5YR 5/6), yellowish brown (10YR 5/8), white (10YR 8/2), and red (2.5YR 4/8) light clay loam; friable; moderate fine and medium subangular blocky structure; few thin patchy clay films; few mica flakes; few angular quartz rocks less than 1/2 in. in diameter; few fine roots; strongly acid; gradual wavy boundary.
C	50 to 74 inches plus. Mottled colors of yellowish red (5YR 5/6 and 5/8), strong brown (7.5YR 5/6), yellowish brown (10YR 5/8), white (10YR 8/2), red (2.5YR 4/8), and brownish yellow (10YR 6/6) loam; granite gneiss and schist rock material.

APPLING COARSE SANDY LOAM (13,23,I,b)

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     WEIGHT  PERCENT  AND  VOLUME  PERCENT  OF  WATER  RETAINED

IDENTIFICATION       T E N S I O N S  (BARS)
                                                              BD        TP        K
13  23   4   2     .1       .3        .6        3.        15.       G/CC      PCT      IN/HR

    DEPTH                                                        1
      0          15.87    11.87     10.84      8.16      4.01     1.57     40.75     1.19
                 24.91    18.63     17.01     12.81      6.29     1.65     37.74      .55
                 FRAGMENT 14.81                SIEVED    5.16ROCK PERCENT 35.96
                                                                  1
      4          15.23    11.26      9.89      7.63      4.22     1.70     35.85      .22
                 25.89    19.14     16.81     12.97      7.17     1.78     32.83      .61
                 FRAGMENT 12.47                SIEVED    7.01ROCK PERCENT 36.80
                                                                  1
      7          34.92    32.86     29.95     29.60     23.48     1.25     52.83      .18
                 43.65    41.07     37.43     37.00     29.35     1.42     46.42      .19
                 FRAGMENT 33.78                SIEVED   28.50ROCK PERCENT 15.67
                                                                  1
     22          33.33    32.11     30.46     27.77     25.32     1.21     54.34      .56
                 40.32    38.85     36.85     33.60     30.63     1.35     49.06      .23
                 FRAGMENT 34.20                SIEVED   26.59ROCK PERCENT 17.03
                                                                  1
     32          34.72    31.25     27.21     26.78     18.60     1.30     50.94      .36
                 45.13    40.62     35.37     34.81     24.18     1.37     48.30      .32
                 FRAGMENT 33.44                SIEVED   20.94ROCK PERCENT 29.55
                                                                  1
     50          31.77    26.05     19.86     19.75     11.54     1.36     48.68      .70
                 43.20    35.42     27.00     26.86     15.69     1.47     44.53      .20
                 FRAGMENT 28.14                SIEVED   14.94ROCK PERCENT 27.51

     1=FIST
     2=CORE
     3=LOOSE
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CECIL GRITTY SANDY LOAM (13,24,P,a)

Location: Brunswick Co., Rocky Run Branch Watershed; located 50' from fence, in pasture, 400 yds. W of county road #656.
Vegetation and land use: Pasture
Topography: Gently sloping
Drainage: Well drained
Parent Material: Granite gneiss and schist
Described and sampled by: K. Fussell, J. Williams, J. B. Burford

Horizon	Description
Ap	0 to 7 inches. Dark yellowish brown (10YR 4/4) gritty sandy loam; very friable; moderate medium granular structure; occasional angular quartz rock less than 3" in diameter; many fine roots; strongly acid; abrupt wavy boundary.
B22t	7 to 15 inches. Red (2.5Y 4/6) clay; firm; some ped faces coated with yellowish red (5YR 4/8) clay which apparently is result of root and worm action between horizons; moderate medium subangular blocky structure; thin clay film on most peds; many fine roots; few mica flakes; occasional angular quartz rock less than 1/2" in diameter; strongly acid; clear smooth boundary.
B23t	15 to 26 inches. Red (2.5YR 4/6) heavy clay loam with common fine faint mottles of yellowish red (5YR 4/8), common fine distinct mottles of strong brown (7.5YR 5/6) and brownish yellow (10YR 6/6); friable; moderate medium subangular blocky structure; thin clay film on most peds; common fine roots; common mica flakes; few pockets of gritty clay loam; strongly acid; clear smooth boundary.
B31	26 to 40 inches. Red (2.5YR 4/6) light clay loam with many medium faint mottles of yellowish red (5YR 5/8) and few fine distinct mottles of brownish yellow (10YR 6/6); friable; weak fine and medium subangular blocky structure; thin patchy clay films; many mica flakes, slick and greasy to feel; few pockets of gritty clay loam; strongly acid; clear wavy boundary.
B32	40 to 58 inches. Red (2.5YR 4/6) pockets of light gritty clay loam mixed with highly weathered granite gneiss and schist rock with many medium faint mottles of yellowish red (5YR 5/8) and many medium distinct mottles of brownish yellow (10YR 6/6); friable; many mica flakes; weak coarse granular structure; slick and greasy to the feel; strongly acid; gradual wavy boundary.
C	58 to 66 inches plus. Mottled colors of red (2.5YR 4/6), yellowish red (5YR 5/6), brownish yellow (10YR 6/6), reddish yellow (7.5YR 6/6), and very pale brown (10YR 7/3) gritty loam of highly weathered granite gneiss and schist material.

CECIL GRITTY SANDY LOAM (13,24,P,a)

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      WEIGHT  PERCENT  AND  VOLUME  PERCENT  OF  WATER  RETAINED

IDENTIFICATION       T E N S I O N S  (BARS)
                                                                   BD        TP       K
13  24   1   1     .1        .3        .6        3.        15.       G/CC      PCT    IN/HR

    DEPTH                                                              1
     0             14.22     11.72     11.00      8.17      7.74     1.59     40.00    1.31
                   22.60     18.63     17.49     12.99     12.30     1.70     35.85    1.32
                   FRAGMENT  14.71                SIEVED    8.33ROCK PERCENT 33.37
                                                                       1
     7             28.34     27.08     26.60     23.78     22.56     1.38     47.92    2.01
                   39.10     37.37     36.70     32.81     31.13     1.53     42.26    2.44
                   FRAGMENT  26.15                SIEVED   29.55ROCK PERCENT 26.98
                                                                       1
    15             30.86     30.05     27.99     25.87     23.43     1.21     54.34     .59
                   37.34     36.36     33.86     31.30     28.35     1.35     49.06     .16
                   FRAGMENT  32.00                SIEVED   25.70ROCK PERCENT 10.67
                                                                       1
    26             32.59     29.80     29.71     27.55     19.29     1.34     49.43     .27
                   43.67     39.93     39.81     36.91     25.84     1.45     45.28     .28
                   FRAGMENT  32.78                SIEVED   22.93ROCK PERCENT 13.76
                                                                       1
    40             27.16     23.91     22.79     16.26     14.30     1.45     45.28     .13
                   39.38     34.66     33.04     23.57     20.73     1.52     42.64     .07
                   FRAGMENT  26.46                SIEVED   13.80ROCK PERCENT 19.02
                                                                       1
    58             35.36     26.08     23.72     16.75     10.34     1.36     48.68     .11
                   48.08     35.46     32.25     22.78     14.06     1.44     45.66     .20
                   FRAGMENT  28.00                SIEVED    9.77ROCK PERCENT 14.52

      1=FIST
      2=CORE
      3=LOOSE
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CECIL GRITTY SANDY LOAM (13,24,P,b)

Location: Brunswick Co., Rocky Run Branch Watershed, located in pasture 75' SW of fence, 400 yds. W of county road #656.
Vegetation and land use: Pasture
Topography: Gently sloping
Drainage: Well drained
Parent Material: Granite gneiss and schist
Described and sampled by: K. Fussell, J. Williams, J. B. Burford

Horizon	Description
Ap	0 to 6 inches. Dark yellowish brown (10YR 4/4) gritty sandy loam; very friable; weak medium granular structure; many fine roots; medium acid; few small peds of red (2.5YR 4/6) brought up from lower horizons by plowing; abrupt wavy boundary.
B22t	6 to 15 inches. Red (2.5YR 4/6) clay with few fine mottles of yellowish red (5YR 5/8); some ped faces are coated with yellowish red (5YR 4/8) clay which is apparently result of root and worm action; firm; moderate medium subangular blocky structure; thin continuous clay films; few mica flakes; common fine roots; occasional quartz rock less than 1/2" in diameter; medium acid; clear wavy boundary.
B23t	15 to 31 inches. Red (2.5YR 4/6) clay loam with common fine faint mottles of yellowish red (5YR 5/8) and common fine distinct mottles of yellowish brown (10YR 5/8); moderate medium and fine subangular blocky structure; friable; thin clay film on most ped faces; common mica flakes; 10 percent grit by volume; few fine roots; strongly acid; clear wavy boundary.
B31	31 to 42 inches. Red (2.5YR 4/6) clay loam with many medium faint mottles of yellowish red (5YR 5/8) and few medium distinct mottles of strong brown (7.5YR 5/8) and reddish yellow (7.5YR 6/8); friable; moderate to weak medium and fine blocky and subangular blocky structure; patchy clay film; many mica flakes; 10 percent grit by volume; strongly acid; clear smooth boundary.
B32	42 to 56 inches. Mottled colors of red (2.5YR 4/8), yellow red (5YR 5/8), reddish yellow (7.5YR 6/8), very pale brown (10YR 7/4) highly weathered granite gneiss and schist with few pockets of light clay loam; friable; weak fine and medium subangular blocky structure; many mica flakes; slick and greasy to the feel; 10 percent grit by volume; few patchy clay films; very strongly acid; gradual wavy boundary.
C	56 to 71 inches plus. Mottled colors of yellowish red (5YR 5/8), red (2.5YR 4/6), reddish yellow (5YR 6/8) and very pale brown (10YR 7/4) highly weathered granite gneiss and schist; silt loam with 10 percent grit by volume.

BLACKSBURG, VIRGINIA

CECIL GRITTY SANDY LOAM (13,24,P,b)

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     WEIGHT  PERCENT  AND  VOLUME  PERCENT  OF  WATER  RETAINED

IDENTIFICATION       T E N S I O N S  (BARS)
                                                                BD       TP       K
13  24   1   2     .1       .3       .6       3.       15.      G/CC     PCT      IN/HR

      DEPTH                                                        1
       0          15.24    12.35    10.30     9.21     6.34     1.72     35.09    .40
                  26.21    21.24    17.71    15.84    10.90     1.81     31.70    .51
                  FRAGMENT 12.34              SIEVED   9.42ROCK PERCENT 28.48
                                                                   1
       6          26.90    23.76    22.22    21.53    18.28     1.33     49.81    .13
                  35.77    31.60    29.55    28.63    24.31     1.48     44.15    .02
                  FRAGMENT 26.51              SIEVED  26.33ROCK PERCENT 28.43
                                                                   1
      15          32.02    29.26    28.67    27.27    24.58     1.32     50.19    .39
                  42.26    38.62    37.84    35.99    32.44     1.43     46.04    .39
                  FRAGMENT 33.53              SIEVED  24.74ROCK PERCENT   .46
                                                                   1
      31          29.89    28.02    25.87    21.68    18.62     1.41     46.79    .06
                  42.14    39.50    36.47    30.56    26.25     1.48     44.15    .04
                  FRAGMENT 29.10              SIEVED  19.30ROCK PERCENT 16.54
                                                                   1
      42          35.15    26.66    19.52    16.49    13.02     1.29     51.32    .12
                  45.34    34.39    25.18    21.27    16.79     1.35     49.06    .19
                  FRAGMENT 28.45              SIEVED  11.79ROCK PERCENT 12.50
                                                                   1
      56          36.36    24.46    20.29    15.78    10.69     1.29     51.32    .06
                  46.90    31.55    26.17    20.35    13.79     1.34     49.43    .16
                  FRAGMENT 27.91              SIEVED  10.14ROCK PERCENT 15.20

       1=FIST
       2=CORE
       3=LOOSE
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CECIL GRITTY SANDY LOAM (13,24,F,a)

Location: Brunswick Co., Rocky Run Branch Watershed, on Miss Flournoy's land, 25' NE of pit 13,24,F,b.
Vegetation and land use: Mixed hardwoods and pine forest
Topography: Gently sloping
Drainage: Well drained
Parent Material: Granite gneiss and schist
Described and sampled by: K. Fussell, J. Williams, J. B. Burford

Horizon	Description
01	1/2 to 0 inch. Organic material--leaves, twigs, and roots.
A1	0 to 2 inches. Dark grayish brown (10YR 4/2) gritty sandy loam; very friable; weak fine granular structure; very strongly acid; profuse roots; abrupt smooth boundary.
A2	2 to 9 inches. Yellowish brown (10YR 5/4) gritty sandy loam; very friable; weak fine granular structure; many roots; medium acid; some fingers of dark grayish brown gritty sandy loam from A1 horizon; clear wavy boundary.
B1	9 to 11 inches. Yellowish red (7.5YR 5/6) gritty clay loam; friable; weak fine subangular blocky structure; few patchy clay films; many roots; strongly acid; clear wavy boundary.
B22t	11 to 29 inches. Red (2.5YR 4/8) clay; firm; moderate medium blocky and subangular blocky structure; few patchy clay films on faces of peds and in pores; few mica flakes; strongly acid; common roots; clear wavy boundary.
B23t	29 to 35 inches. Red (2.5YR 4/8) clay loam; friable; few angular quartz fragments less than 1/2" in diameter; common fine faint mottles of yellowish red (5YR 5/8); moderate medium blocky and subangular blocky structure; thin patchy clay films on ped faces; common mica flakes; few fine roots; strongly acid; clear smooth boundary.
B3	35 to 64 inches. Red (2.5YR 4/8) gritty light fine sandy clay loam with pockets of gritty clay loam; common medium faint mottles of yellowish red (5YR 5/6) and common fine distinct mottles of white (10YR 8/2); friable; weak fine subangular and weak coarse granular structure; thin patchy clay films; common mica flakes; few fine roots; strongly acid; gradual wavy boundary; highly weathered fragments of granite gneiss present.
C	64 to 72 inches plus. Yellowish red (5YR 5/8) with common medium faint red (2.5YR 5/6) mottles and common medium distinct brownish yellow (10YR 6/6) and white (10YR 8/2) mottles; numerous quartz rock less than 1 inch in diameter; weathered granite gneiss and schist.

BLACKSBURG, VIRGINIA

CECIL GRITTY SANDY LOAM (13,24,F,a)

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      WEIGHT  PERCENT  AND  VOLUME  PERCENT  OF  WATER  RETAINED

IDENTIFICATION         T E N S I O N S  (BARS)
                                                                      BD       TP      K
13  24   3   1     .1       .3       .6        3.       15.          G/CC     PCT    IN/HR

     DEPTH                                                               1
       0          19.79    17.44    15.99    12.06     5.69          1.47    44.53   1.06
                  29.09    25.63    23.50    17.72     8.36          1.55    41.51   1.53
                  FRAGMENT 17.28              SIEVED   5.15ROCK PERCENT 28.05
                                                                         1
       2          14.59    10.94     8.33     7.69     4.58          1.42    46.42   2.99
                  20.71    15.53    11.82    10.91     6.50          1.68    36.60   1.39
                  FRAGMENT 13.91              SIEVED   5.02ROCK PERCENT 44.16
                                                                         1
       9          19.61    16.41    15.42    12.76    10.54          1.49    43.77    .27
                  29.21    24.45    22.97    19.01    15.70          1.58    40.38    .67
                  FRAGMENT 17.45              SIEVED  12.56ROCK PERCENT 34.16

       1=FIST
       2=CORE
       3=LOOSE
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CECIL GRITTY SANDY LOAM (13,24,F,b)

Location: Brunswick Co., Rocky Run Branch Watershed, on Miss Flournoy's property, 25' SW of pit 13,24,F,a, 20' S of phone line, 250' W of #656.
Vegetation and land use: Mixed hardwoods and pine forest
Topography: Gently sloping
Drainage: Well drained
Parent Material: Granite gneiss and schist
Described and sampled by: K. Fussell, J. Williams, J. B. Burford

Horizon	Description
01	1/2 to 0 inch. Loose leaf litter--leaves, twigs, and roots in various stages of decay.
A1	0 to 2 inches. Dark grayish brown (10YR 4/2) gritty sandy loam; very friable; weak fine granular structure; profuse roots; strongly acid; abrupt and smooth boundary.
A2	2 to 9 inches. Yellowish brown (10YR 5/4) gritty sandy loam with tongues of dark grayish brown (10YR 4/2) gritty sandy loam from A1 horizon and few tongues of yellowish red (5YR 5/8) brought up from lower horizons; very friable; weak medium and coarse granular structure; many roots; medium acid; clear smooth boundary.
B1	9 to 11 inches. Yellowish red (5YR 4/8) gritty clay loam; friable; weak fine subangular blocky structure; clay films in root channels; many roots; strongly acid; clear smooth boundary.
B22t	11 to 25 inches. Red (2.5YR 4/8) clay; firm; moderate medium blocky and subangular blocky structure; thin clay films on surface of peds; few mica flakes; common roots; strongly acid; occasional quartz rock less than 1/2" in diameter; clear and wavy boundary.
B23t	25 to 38 inches. Red (2.5YR 4/8) clay loam with common fine faint mottles of yellowish red (5YR 5/8); friable; moderate medium and fine subangular blocky structure; clay films on surface of peds; common mica flakes; occasional angular quartz rock less than 1/2" in diameter; few fine roots; strongly acid; gradual wavy boundary.
B3	38 to 67 inches. Red (2.5YR 4/8) light clay loam with few pockets of gritty clay loam; many medium faint mottles of yellowish red (5YR 5/8) and common fine distinct mottles of brownish yellow (10YR 6/6); friable; moderate medium and fine subangular blocky structure; thin patchy clay films; common mica flakes; very strongly acid; few fine roots; slick and greasy to feel where void of gritty material; highly weathered fragments of granite gneiss present; gradual wavy boundary.
C	67 to 79 inches plus. Mottled colors of red (2.5YR 4/8), yellowish red (5YR 5/8), very pale brown (10YR 7/4), white (10YR 8/1), and strong brown (7.5YR 5/6) highly weathered granite gneiss and schist rock material.

BLACKSBURG, VIRGINIA

CECIL GRITTY SANDY LOAM (13,24,F,b)

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      WEIGHT  PERCENT  AND  VOLUME  PERCENT  OF  WATER  RETAINED

IDENTIFICATION        T E N S I O N S  (BARS)
                                                               BD       TP       K
13  24   3   2     .1       .3       .6       3.       15.     G/CC     PCT     IN/HR

     DEPTH                                                       1
       0          20.11    17.14    15.16    11.32    5.88     1.44     45.66     .76
                  28.95    24.68    21.83    16.30    8.46     1.50     43.40    1.28
                  FRAGMENT 15.52               SIEVED  9.79ROCK PERCENT 27.87
                                                                 1
       2          17.85    13.91    12.41    12.13    8.48     1.65     37.74    2.14
                  29.45    22.95    20.47    20.01   13.99     1.71     35.47    2.66
                  FRAGMENT 12.17               SIEVED  6.41ROCK PERCENT 36.37
                                                                 1
       9          13.98    11.24     8.78     6.04    3.70     1.42     46.42     .46
                  19.85    15.96    12.46     8.57    5.25     1.56     41.13     .53
                  FRAGMENT 10.73               SIEVED  6.20ROCK PERCENT 35.54

      1=FIST
      2=CORE
      3=LOOSE
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LLOYD LOAM (13,25,P,a and b)

Location: Bedford Co., Chestnut Branch Watershed, Hyatt farm, 300' E of R-1 raingage, pits 60' apart N-S.
Vegetation and land use: Pasture
Topography: Gently sloping
Drainage: Well drained
Parent Material: Mixed acidic and basic igneous and metamorphic rock
Described and sampled by: C. N. Judy and J. B. Burford

Horizon	Description
Pit a	
Ap	0 to 7 inches. Reddish brown (5YR 4/4) loam; weak fine granular structure; friable; few fine mica flakes; few fine roots; clear smooth boundary.
B21t	7 to 15 inches. Dark red (2.5YR 3/6) silty clay loam; moderate medium subangular blocky structure; friable; fine roots common; finely divided mica flakes common; many fine pores; few, thin faint discontinuous clay films; gradual smooth boundary.
B22t	15 to 35 inches. Dark red (2.5YR 3/6) silty clay loam; moderate fine and medium subangular blocky structure; friable; finely divided mica flakes; thin continuous clay films on most ped surfaces; fine pores common; gradual smooth boundary.
B3	35 to 46 inches. Dark red (2.5YR 3/6) light silty clay loam; weak medium and weak fine subangular blocky structure; friable; finely divided mica flakes common; an occasional fine root; few fine pores; gradual irregular boundary.
C1	46 to 69 inches. Red to dark red loamy soil material; many finely divided mica flakes; gradual irregular boundary.
C2	69 to 82 inches. Red silty soil material, very micaceous.
Pit b	
Ap	0 to 8 inches. Reddish brown (5YR 4/4) loam; weak fine granular structure; friable; many fine roots; clear smooth boundary.
B21t	8 to 23 inches. Dark red (2.5YR 3/6) silty clay loam; moderate medium subangular blocky structure; friable; fine roots common; finely divided mica flakes common; many fine pores, few medium and an occasional large pore; few thin, faint discontinuous clay films; gradual smooth boundary.
B22	23 to 35 inches. Dark red (2.5YR 3/6) silty clay loam; moderate fine and medium subangular blocky structure; friable; fine roots common; finely divided mica flakes common; thin continuous clay films on most ped surfaces; fine and medium pores common; gradual smooth boundary.
B3	35 to 50 inches. Dark red (2.5YR 3/6) to red (10YR 4/8) light silty clay loam; weak medium and weak fine subangular blocky structure; friable; finely divided mica flakes common; few thin faint discontinuous clay films; few fine pores; gradual irregular boundary.
C	50 to 78 inches. Red silty and loamy soil material; finely divided mica flakes common. This horizon contains a vertical streak of highly weathered dark colored basic gneiss or schist about 1 foot thick.

LLOYD LOAM (13,25,P,a and b)

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      WEIGHT  PERCENT  AND  VOLUME  PERCENT  OF  WATER  RETAINED

IDENTIFICATION        T E N S I O N S  (BARS)
                                                            BD        TP        K
13  25   1   1     .1       .3       .6       3.       15.      G/CC      PCT     IN/HR

  DEPTH                                                        1
   0               26.53    22.60    19.06    17.56    11.16    1.43     46.04     .65
                   37.93    32.31    27.25    25.11    15.95    1.54     41.89     .28
                   FRAGMENT 21.03             SIEVED  10.08ROCK PERCENT  20.38
                                                                1
   7               33.85    32.02    29.51    28.24    25.45    1.38     47.92     .02
                   46.71    44.18    40.72    38.97    35.12    1.54     41.89     .16
                   FRAGMENT 29.66             SIEVED  22.70ROCK PERCENT  29.13
                                                                1
  15               34.36    33.54    30.45    29.69    25.17    1.38     47.92     .10
                   47.41    46.28    42.02    40.97    34.73    1.48     44.15     .10
                   FRAGMENT 35.10             SIEVED  25.74ROCK PERCENT  20.95
                                                                1
  35               36.03    30.55    27.50    27.22    22.79    1.39     47.55     .08
                   50.08    42.46    38.22    37.83    31.67    1.47     44.53     .04
                   FRAGMENT 27.33             SIEVED  20.44ROCK PERCENT  13.53
                                                                1
  46               35.50    30.55    27.22    25.68    22.32    1.38     47.92     .12
                   48.99    42.15    37.56    35.43    30.80    1.46     44.91     .09
                   FRAGMENT 27.32             SIEVED  20.85ROCK PERCENT   1.88


IDENTIFICATION        T E N S I O N S  (BARS)
                                                            BD        TP        K
13  25   1   2     .1       .3       .6       3.       15.      G/CC      PCT     IN/HR

  DEPTH                                                        1
   0               23.40    19.79    16.37    14.83     9.44    1.47     44.53    1.04
                   34.39    29.09    24.06    21.80    13.87    1.54     41.89     .70
                   FRAGMENT 17.21             SIEVED   8.21ROCK PERCENT   4.09
                                                                1
   8               30.76    29.73    28.49    27.01    21.32    1.36     48.68     .23
                   41.83    40.43    38.74    36.73    28.99    1.50     43.40     .30
                   FRAGMENT 32.87             SIEVED  21.90ROCK PERCENT  23.88
                                                                1
  23               34.42    32.18    30.51    28.32    23.12    1.41     46.79     .16
                   48.53    45.37    43.01    39.93    32.59    1.50     43.40     .09
                   FRAGMENT 29.94             SIEVED  23.88ROCK PERCENT   1.50
                                                                1
  35               37.83    28.67    26.14    23.56    21.05    1.39     47.55     .06
                   52.58    39.85    36.33    32.74    29.25    1.48     44.15     .07
                   FRAGMENT 28.31             SIEVED  20.10ROCK PERCENT  17.44
                                                                1
  50               32.85    28.79    25.00    24.46    17.88    1.39     47.55     0
                   45.66    40.01    34.75    33.99    24.85    1.48     44.15     .42
                   FRAGMENT 27.26             SIEVED  17.57ROCK PERCENT  18.45


      1=FIST
      2=CORE
      3=LOOSE
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LLOYD CLAY LOAM (13,26,P,a and b)

Location: Bedford Co., Chestnut Branch Watershed, Hyatt farm, across swale from pits 13,25,P, a and b.
Vegetation and land use: Pasture
Topography: Sloping
Drainage: Well drained
Parent Material: Mixed acidic and basic granite gneiss
Described and sampled by: C. N. Judy and J. B. Burford

Horizon	Description
Pit a	
Ap	0 to 7 inches. Dark reddish brown (5YR 3/4) clay loam; moderate medium and moderate fine granular structure; friable; abundance of fine roots; finely divided mica flakes common; clear smooth boundary.
B2t	7 to 17 inches. Dark red (2.5YR 3/6) silty clay loam; moderate medium subangular blocky structure; friable; fine roots common; finely divided mica flakes common; many fine and medium pores; thin distinct clay films on most ped surfaces; gradual smooth boundary.
B3	17 to 29 inches. Red (2.5YR 4/6) light silty clay loam; weak fine subangular blocky structure; friable; few fine roots; finely divided mica flakes common; thin faint discontinuous clay films on about half of ped surfaces; fine pores common; gradual irregular boundary.
C	29 to 72 inches plus. Red with small spots of reddish brown; silty and loamy; very friable micaceous soil material.
Pit b	
Ap	0 to 4 inches. Reddish brown (5YR 4/4) to dark reddish brown (5YR 3/4) light silty clay loam; moderate medium and moderate fine granular structure; friable; abundance of fine roots; finely divided mica flakes common; clear smooth boundary.
B2t	4 to 21 inches. Dark red (2.5YR 3/6) silty clay loam; moderate medium subangular blocky structure; friable; fine roots common; finely divided mica flakes common; many fine and medium pores; thin distinct clay films on most ped surfaces; gradual smooth boundary.
B3	21 to 36 inches. Red (2.5YR 4/6) to dark red (2.5YR 3/6) light silty clay loam; weak fine subangular blocky structure; friable; occasional fine roots; finely divided mica flakes common; thin faint clay film on about half of ped surfaces; fine pores common; gradual irregular boundary.
C	36 to 72 inches plus. Reddish brown with spots of yellowish red, contains some black mineral streaks; silty and loamy, very friable micaceous soil material.

LLOYD CLAY LOAM (13,26,P,a and b)

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     WEIGHT  PERCENT  AND  VOLUME  PERCENT  OF  WATER  RETAINED

IDENTIFICATION        T E N S I O N S  (BARS)
                                                                      BD        TP       K
13  26   1   1     .1         .3         .6         3.         15.       G/CC      PCT     IN/HR

    DEPTH                                                               1
     0            30.96      24.87      22.50      21.42      14.88      1.31      50.57      .98
                  40.55      32.57      29.47      28.06      19.49      1.41      46.79      .84
                  FRAGMENT 24.14                     SIEVED 15.31ROCK PERCENT 19.57
                                                                         1
     7            37.34      35.15      32.99      32.40      26.54      1.31      50.57      .44
                  48.91      46.04      43.21      42.44      34.76      1.41      46.79      .11
                  FRAGMENT 35.81                     SIEVED 25.90ROCK PERCENT  3.22
                                                                         1
    17            33.33      27.46      26.21      24.69      19.15      1.32      50.19      .08
                  43.99      36.24      34.59      32.59      25.27      1.49      43.77      .11
                  FRAGMENT 26.37                     SIEVED 19.16ROCK PERCENT  1.22
                                                                         1
    29            36.77      23.03      22.06      19.90      15.06      1.33      49.81      .19
                  48.90      30.62      29.33      26.46      20.02      1.43      46.04      .12
                  FRAGMENT 27.22                     SIEVED 14.92ROCK PERCENT 10.16

IDENTIFICATION        T E N S I O N S  (BARS)
                                                                      BD        TP       K
13  26   1   2     .1         .3         .6         3.         15.       G/CC      PCT     IN/HR

    DEPTH                                                               1
     0            36.98      29.16      25.38      24.11      20.09      1.33      49.81      .60
                  49.18      38.78      33.75      32.06      26.71      1.46      44.91      .97
                  FRAGMENT 27.44                     SIEVED 18.46ROCK PERCENT  2.36
                                                                         1
     4            36.54      32.60      32.01      30.00      25.16      1.38      47.92      .47
                  50.42      44.98      44.17      41.40      34.72      1.48      44.15      0
                  FRAGMENT 29.16                     SIEVED 24.85ROCK PERCENT 26.66
                                                                         1
    21            33.11      26.66      25.77      22.91      17.97      1.45      45.28      .08
                  48.00      38.65      37.36      33.21      26.05      1.53      42.26      .12
                  FRAGMENT 25.53                     SIEVED 20.09ROCK PERCENT 23.28
                                                                         1
    36            36.46      21.80      21.05      17.72      12.60      1.33      49.81      .12
                  48.49      28.99      27.99      23.56      16.75      1.46      44.91      .45
                  FRAGMENT 24.93                     SIEVED 11.62ROCK PERCENT 21.51

      1=FIST
      2=CORE
      3=LOOSE
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CECIL GRAVELLY FINE SANDY LOAM (13,27,F,a)

Location: Bedford Co., Chestnut Branch Watershed, 40' S of #643, 460' W of junction of 643 and 668.
Vegetation and land use: Woods--mixed oak, 3 to 18 in. diam.
Topography: Gently sloping
Drainage: Well drained
Parent Material: Slightly basic granite gneiss (micaceous)
Described and sampled by: C. N. Judy and J. B. Burford

Horizon	Description
A00	1-1/2 to 1/2 inch. Loose oak leaves and twigs.
A0	1/2 to 0 inch. Very dark brown (10YR 4/2) partly decomposed deciduous leaf litter.
A1	0 to 1 inch. Dark grayish brown (10YR 4/2) fine sandy loam; moderate medium and moderate fine granular structure; very friable; many fine and medium roots; contains about 15 to 20 percent quartz gravel 1 to 3 inches in diameter; abrupt smooth boundary.
A2	1 to 7 inches. Yellowish red (5YR 4/8) fine sandy loam; moderate medium and weak fine granular structure; friable; many fine and medium roots; 15-20 percent quartz gravel 2-3" in diameter; clear smooth boundary.
A3	7 to 8-1/2 inches. Yellowish red (5YR 4/8) heavy loam; moderate medium granular structure; friable; many fine and medium roots; few finely divided mica flakes; clear smooth boundary.
B21t	8-1/2 to 17 inches. Red (2.5YR 4/8) heavy clay loam; moderate medium and moderate fine subangular blocky structure; friable; fine and medium roots are common, few large roots; many fine and medium pores; occasional quartz gravel; few finely divided mica flakes; gradual smooth boundary.
B22t	17 to 26 inches. Red (2.5YR 4/6) heavy silty clay loam; moderate medium and moderate fine subangular blocky structure; friable; thin clay films on most ped surfaces; fine roots common; many small and medium pores; finely divided mica flakes common; gradual smooth boundary.
B23t	26 to 35 inches. Red (2.5YR 4/6) silty clay loam; moderate medium and moderate fine subangular blocky structure; friable; faint thin discontinuous clay films on 70 percent of peds; occasional fine roots; fine pores common; finely divided mica flakes common; gradual smooth boundary.
B3	35 to 49 inches. Red (2.5YR 4/6) silty clay loam; weak medium and weak fine subangular blocky structure; friable; faint thin discontinuous clay films on about 25 percent of peds; occasional fine roots; few fine medium pores; finely divided mica flakes common; gradual irregular boundary.
C	49 to 66 inches plus. Red micaceous silty soil material.

CECIL GRAVELLY FINE SANDY LOAM (13,27,F,a)

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     WEIGHT  PERCENT  AND  VOLUME  PERCENT  OF  WATER  RETAINED

IDENTIFICATION        T E N S I O N S  (BARS)
                                                                BD        TP          K
13  27   3   1      .1        .3        .6        3.        15.       G/CC      PCT      IN/HR

     DEPTH                                                           3
      0            48.57     34.78     26.88     25.53     13.51      .84      68.30
                   40.79     29.21     22.57     21.44     11.34
                   FRAGMENT                        SIEVED 11.11ROCK PERCENT  8.73
                                                                     1
      1            31.08     22.69     20.64     15.09      9.18     1.38      47.92       .42
                   42.89     31.31     28.48     20.82     12.66     1.47      44.53       .65
                   FRAGMENT  21.46                 SIEVED  6.89ROCK PERCENT  8.96
                                                                     3
      7            24.56     21.75     20.74     17.46     11.54     1.32      50.19
                   32.41     28.71     27.37     23.04     15.23
                   FRAGMENT                        SIEVED 14.66ROCK PERCENT 24.66
                                                                     1
      8            33.23     31.31     30.52     27.94     25.00     1.42      46.42       .11
                   47.18     44.46     43.33     39.67     35.50     1.55      41.51       .35
                   FRAGMENT  29.97                 SIEVED 33.19ROCK PERCENT 28.11
                                                                     1
     17            41.44     36.04     35.23     33.33     28.07     1.19      55.09       .04
                   49.31     42.88     41.92     39.66     33.40     1.34      49.43       .16
                   FRAGMENT  35.61                 SIEVED 29.89ROCK PERCENT 27.83
                                                                     1
     26            36.86     33.91     32.37     28.90     27.31     1.36      48.68       .08
                   50.12     46.11     44.02     39.30     37.14     1.46      44.91       .06
                   FRAGMENT  32.09                 SIEVED 28.27ROCK PERCENT  2.70
                                                                     1
     35            32.83     29.76     29.14     26.51     23.58     1.36      48.68       0
                   44.64     40.47     39.63     36.05     32.06     1.45      45.28       .40
                   FRAGMENT  29.68                 SIEVED 26.92ROCK PERCENT 20.32
                                                                     1
     49            33.54     28.99     27.91     24.35     21.02     1.41      46.79       .13
                   47.29     40.87     39.35     34.33     29.63     1.49      43.77       .02
                   FRAGMENT  28.30                 SIEVED 18.48ROCK PERCENT

       1=FIST
       2=CORE
       3=LOOSE
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CECIL GRAVELLY FINE SANDY LOAM (13,27,F,b)

Location: Bedford Co., Chestnut Branch Watershed, 20' S of #643, about 360' W of junction of #643 and #668.
Vegetation and land use: Woods--mixed oak.
Topography: Gently sloping
Drainage: Well drained
Parent Material: Slightly basic granite gneiss (micaceous)
Described and sampled by: C. N. Judy and J. B. Burford

Horizon	Description
A0	1/2 to 0 inch. Very dark brown (10YR 4/2) partly decomposed deciduous leaf litter.
A1	0 to 1 inch. Dark grayish brown (10YR 4/2) fine sandy loam; moderate fine granular structure; very friable; contains about 10 percent quartz gravel 1/2" to 1-1/2" in diam.; many fine and medium roots; clear and smooth boundary.
A2	1 to 10 inches. Yellowish red (5YR 5/6) fine sandy loam; moderate medium and moderate fine granular structure; very friable; many fine and medium roots, few large roots; 10 percent angular quartz gravel 1/2" to 1-1/2" diam.; gradual smooth boundary.
A3	10 to 12 inches. Yellowish red (5YR 4/6) heavy fine sandy loam; moderate medium and moderate fine granular structure; friable; contains about 5-10 percent angular quartz gravel about 1/2"-1" in diam.; many fine and medium roots, occasional large root; clear smooth boundary.
B21t	12 to 17 inches. Red (2.5YR 4/6) clay loam; moderate medium and moderate fine subangular blocky structure; friable; many fine and medium roots; few finely divided mica flakes; faint thin discontinuous clay films on about 25 percent of ped surfaces; many fine and medium pores; gradual smooth boundary.
B22t	17 to 31 inches. Red (2.5YR 4/6) silty clay loam; moderate medium and moderate fine subangular blocky structure; friable; faint thin clay films on about 70 percent of ped surfaces; fine and medium roots common; occasional large roots; fine and medium pores common; finely divided mica flakes common; gradual smooth boundary.
B3	31 to 49 inches. Red (2.5YR 4/6) silty clay loam; weak medium and weak fine subangular blocky structure; friable; faint thin clay films on about 40 percent of ped surfaces; finely divided mica flakes common; few fine roots; fine pores common; contains about 30 percent highly weathered micaceous gneiss; gradual irregular boundary.
C	49 to 62 inches. Red micaceous silty soil material.

CECIL GRAVELLY FINE SANDY LOAM (13,27,F,b)

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       WEIGHT  PERCENT  AND  VOLUME  PERCENT  OF  WATER  RETAINED

IDENTIFICATION        T E N S I O N S  (BARS)
                                                                 BD      TP     K
13  27   3   2     .1       .3       .6      3.       15.       G/CC    PCT   IN/HR

     DEPTH                                                          3
      0           33.09    30.15    21.81    21.62    11.08*     .88    66.79
                  29.11    26.53    19.19    19.02     9.75
                  FRAGMENT                     SIEVED  7.69ROCK PERCENT 14.89
                                                                    1
      1           22.64    18.99    12.40    10.61     6.00     1.30    50.94    .26
                  29.43    24.68    16.12    13.79     7.80     1.36    48.68    .46
                  FRAGMENT 20.32               SIEVED  5.20ROCK PERCENT 24.08
                                                                    1
      10          19.24    16.54    13.33    12.63     6.68     1.60    39.62    .15
                  30.78    26.46    21.32    20.20    10.68     1.65    37.74    .11
                  FRAGMENT 16.06               SIEVED  8.01ROCK PERCENT 26.92
                                                                    1
      12          29.31    25.00    22.77    21.87    19.42     1.44    45.66    .07
                  42.20    36.00    32.78    31.49    27.96     1.57    40.75    .21
                  FRAGMENT 24.56               SIEVED 17.59ROCK PERCENT 31.85
                                                                    1
      17          36.24    34.06    33.62    32.63    24.03     1.19    55.09    .07
                  43.12    40.53    40.00    38.82    28.59     1.32    50.19    .16
                  FRAGMENT 33.60               SIEVED 24.86ROCK PERCENT 19.73
                                                                    1
      31          34.28    32.27    28.82    27.73    18.82     1.33    49.81    .08
                  45.59    42.91    38.33    36.88    25.03     1.43    46.04    .12
                  FRAGMENT 35.12               SIEVED 23.18ROCK PERCENT  7.28
                                                                    1
      49          32.41    28.47    25.41    22.27    15.34     1.30    50.94    .09
                  42.13    37.01    33.03    28.95    19.94     1.39    47.55    .26
                  FRAGMENT 31.86               SIEVED 15.07ROCK PERCENT 18.91
                                                    *RERUN AS 13.04

       1=FIST
       2=CORE
       3=LOOSE
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TATUM SILT LOAM (13,28,P,a and b)

Location: Louisa Co., Foster Creek Watershed, in small pasture about 150' W of old Freeman house, pits 75' apart, NW-E.
Vegetation and land use: Pasture
Topography: Gently sloping
Drainage: Well drained
Parent Material: Wissahickon (sericite) schist
Described and sampled by: E. Brunger, L. Davis, J. B. Burford

Horizon	Description
Pit a	
Ap	0 to 6 inches. Brown (7.5YR 5/4) silt loam; strong coarse and medium granular structure; friable; abundant fine roots; about 18 percent angular quartz fragments up to 1-1/2" in diam.; abrupt smooth boundary.
B21t	6 to 21 inches. Red (2.5YR 4/6) silty clay; moderate fine and medium subangular blocky structure; friable when moist, slightly sticky and slightly plastic when wet; distinct continuous clay films; common fine roots in upper portion of horizon; clear wavy boundary.
B22t	21 to 27 inches. Red (2.5YR 4/8) silty clay; moderate very fine to fine subangular and angular blocky structure; friable when moist, slightly sticky and slightly plastic when wet; distinct continuous clay films; few fine roots; gradual wavy boundary.
B3	27 to 35 inches. Red (2.5YR 4/6) silty clay loam; weak fine subangular and angular blocky structure; friable; faint patchy clay films; contains pieces of partly weathered fine grained schist; few fine roots; gradual irregular boundary.
C	35 to 70 inches plus. Weathered fine grained red, brownish yellow, and very pale brown sericite schist.
Pit b	
Ap	0 to 7 inches. Brown (7.5YR 5/4) silt loam; strong medium and coarse granular structure; friable; abundant fine roots; about 10 percent angular quartz fragments up to 1-1/2" in diameter; clear smooth boundary.
B1	7 to 11 inches. Yellowish red (5YR 5/8) silty clay loam; moderate medium subangular blocky structure; friable; evident discontinuous clay films; common fine roots; few angular quartz fragments up to 1" in diameter; clear smooth boundary.
B21t	11 to 22 inches. Red (2.5YR 4/8) silty clay; strong fine and medium subangular blocky structure; friable when moist, slightly sticky and slightly plastic when wet; distinct continuous clay films; few fine roots; few small schist fragments; gradual smooth boundary.
B22t	22 to 30 inches. Red (2.5YR 4/8) silty clay; strong medium and coarse subangular and angular blocky structure; slight tendency toward platiness; friable when moist, slightly sticky and slightly plastic when wet; distinct continuous clay films; few fine roots; few weathered schist fragments; gradual smooth boundary.
B3	30 to 34 inches. Red (2.5YR 4/8) silty clay loam; weak fine subangular and angular blocky structure; friable; faint patchy clay films; much weathered schist material; gradual wavy boundary.
C	34 to 70 inches plus. Weathered fine grained red, yellowish brown, and pale brown sericite schist.

TATUM SILT LOAM (13,28,P,a and b)

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      WEIGHT  PERCENT  AND  VOLUME  PERCENT  OF  WATER  RETAINED

IDENTIFICATION        T E N S I O N S  (BARS)
                                                                 BD        TP       K
13  28   1   1      .1        .3        .6        3.        15.      G/CC      PCT    IN/HR

     DEPTH                                                          1
      0            26.92     22.22     16.73     15.81      8.37     1.34     49.43     .14
                   36.07     29.77     22.41     21.18     11.21     1.44     45.66     .16
                   FRAGMENT  24.46                SIEVED  10.24ROCK PERCENT  33.09
                                                                    1
      6            38.32     34.69     33.87     33.09     14.79     1.28     51.70     .02
                   49.04     44.40     43.35     42.35     18.93     1.44     45.66     .02
                   FRAGMENT  35.55                SIEVED  25.62ROCK PERCENT  27.76
                                                                    1
     21            40.76     38.26     37.83     36.05     28.50     1.21     54.34     .24
                   49.31     46.29     45.77     43.62     34.48     1.34     49.43     .09
                   FRAGMENT  39.60                SIEVED  26.00ROCK PERCENT  12.92
                                                                    1
     27            38.42     33.82     28.58     27.04     18.34     1.35     49.06     .07
                   51.86     45.65     38.58     36.50     24.75     1.43     46.04     .20
                   FRAGMENT  32.47                SIEVED  18.55ROCK PERCENT  12.48
                                                                    1
     35            36.17     29.52     22.05     17.51      9.71     1.31     50.57     .29
                   47.38     38.67     28.88     22.93     12.72     1.39     47.55     .27
                   FRAGMENT  28.89                SIEVED  10.34ROCK PERCENT    .17


IDENTIFICATION        T E N S I O N S  (BARS)
                                                                 BD        TP       K
13  28   1   2      .1        .3        .6        3.        15.      G/CC      PCT    IN/HR

     DEPTH                                                          1
      0            23.63     20.95     16.97     12.12      7.81     1.39     47.55    1.05
                   32.84     29.12     23.58     16.84     10.85     1.50     43.40     .56
                   FRAGMENT  21.29                SIEVED   8.29ROCK PERCENT  32.18
                                                                    1
      7            30.65     24.41     22.27     20.67     11.78     1.28     51.70     0
                   39.23     31.24     28.50     26.45     15.07     1.47     44.53     .02
                   FRAGMENT  22.10                SIEVED  10.74ROCK PERCENT   1.48
                                                                    1
     11            36.06     32.57     29.12     28.80     22.76     1.24     53.21     .16
                   44.71     40.38     36.10     35.71     28.22     1.38     47.92     .05
                   FRAGMENT  33.86                SIEVED  24.88ROCK PERCENT  32.32
                                                                    1
     22            39.10     36.14     34.53     31.33     23.52     1.31     50.57     .31
                   51.22     47.34     45.23     41.04     30.81     1.44     45.66     .12
                   FRAGMENT  34.40                SIEVED  23.50ROCK PERCENT    .58
                                                                    1
     30            39.89     35.99     34.56     33.49     25.97     1.27     52.08     0
                   50.66     45.70     43.89     42.53     19.85     1.37     48.30     .04
                   FRAGMENT  34.23                SIEVED  23.44ROCK PERCENT   8.12
                                                                    1
     34            41.61     36.52     32.97     31.12     17.67     1.21     54.34     .19
                   50.34     44.18     39.89     37.65     21.38     1.32     50.19     .08
                   FRAGMENT  37.17                SIEVED  19.89ROCK PERCENT  21.85

      1=FIST
      2=CORE
      3=LOOSE
```

TATUM SILT LOAM (13,28,F,a and b)

Location: Louisa Co., Fosters Creek Watershed, in woods 20' S of N line fence and 200' W of E line fence at Aubrey Glass farm, pit b 50' E of pit a.
Vegetation and land use: Mixed oak forest
Topography: Gently sloping
Drainage: Well drained
Parent Material: Sericite schist
Described and sampled by: E. H. Brunger, L. B. Davis, J. B. Burford

Horizon	Description
Pit a	
01	2 to 1 inch. Hardwood leaf litter.
02	1 to 0 inch. Partly decomposed leaf litter.
Ap	0 to 5 inches. Brown (7.5YR 5/4) silt loam; moderate medium granular structure; friable; abundant medium roots; about 10 percent angular quartz fragments up to 1-1/2" in diameter; abrupt smooth boundary.
B1	5 to 8 inches. Yellowish red (5YR 4/6) silty clay loam; weak medium subangular blocky structure; friable; faint patchy clay films; common medium roots; few angular quartz fragments up to 1" in diameter; clear smooth boundary.
B21t	8 to 20 inches. Red (2.5YR 4/6) silty clay; moderate medium and fine subangular blocky structure; friable when moist, slightly hard when dry, slightly sticky and slightly plastic when wet; distinct continuous clay films; common fine and medium roots; few small angular quartz fragments; gradual wavy boundary.
B22t	20 to 30 inches. Red (2.5YR 4/6) silty clay; moderate medium and fine subangular and angular blocky structure, with some tendency to platiness; friable when moist, slightly hard when dry, slightly sticky and slightly plastic when wet; distinct continuous clay films; common fine and medium roots; few weathered schist fragments; few angular quartz fragments; gradual irregular boundary.
B3	30 to 42 inches. Red (2.5YR 4/6) silty clay loam; weak medium angular blocky structure; friable; distinct discontinuous clay films; few fine roots; large fragments of partly weathered schist; gradual irregular boundary.
C	42 to 60 inches plus. Weathered fine grained red, very pale brown, and brownish yellow sericite schist.
Pit b	
01	2 to 1/2 inch. Hardwood leaf litter.
02	1/2 to 0 inch. Partly decomposed leaf litter.
AB	0 to 3 inches. Reddish brown (5YR 5/4) silt loam; weak medium granular and weak medium subangular blocky structure; friable; abundant fine to coarse roots; few angular quartz fragments; few weathered schist fragments; gradual smooth boundary.
B2	3 to 22 inches. Red (10R 4/6) silty clay; moderate medium and fine subangular blocky structure; friable when moist, slightly hard when dry, slightly sticky and slightly plastic when wet; evident discontinuous clay films; common fine to coarse roots; few angular quartz fragments; few slightly weathered schist fragments; gradual wavy boundary.
B3	22 to 30 inches. Red (10R 4/6) silty clay loam; weak medium and fine subangular and angular blocky structure; friable; faint distontinuous clay films; few fine to coarse roots; contains many weathered and slightly weathered schist fragments; gradual irregular boundary.
C	30 to 38 inches. Weathered and slightly weathered fine grained red, brownish yellow and pale brown sericite schist; clear irregular boundary.
R	38 inches plus. Hard sericite schist.

TATUM SILT LOAM (13,28,F,a and b)

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        WEIGHT  PERCENT  AND  VOLUME  PERCENT  OF  WATER  RETAINED

IDENTIFICATION          T E N S I O N S  (BARS)
                                                                          BD          TP        K
13  28   3   1       .1         .3         .6         3.        15.      G/CC        PCT     IN/HR

     DEPTH                                                                 1
      0             25.92      20.77      18.72      14.08       5.98     1.39       47.55      .33
                    36.02      28.87      26.02      19.57       8.31     1.44       45.66      .19
                    FRAGMENT 23.46                   SIEVED 10.84ROCK PERCENT 31.53
                                                                           1
      5             27.34      22.92      21.05      18.28      12.23     1.12       57.74      .23
                    30.62      25.67      23.57      20.47      13.69     1.20       54.72      .63
                    FRAGMENT 21.97                   SIEVED 13.33ROCK PERCENT 34.46
                                                                           1
      8             42.52      41.05      38.27      37.49      33.33     1.07       59.62      .10
                    45.49      43.92      40.94      40.11      35.66     1.23       53.58      .24
                    FRAGMENT 44.44                   SIEVED 31.95ROCK PERCENT 17.56
                                                                           1
     20             37.80      35.44      33.89      31.51      27.23     1.31       50.57      .32
                    49.51      46.42      44.39      41.27      35.67     1.43       46.04      .26
                    FRAGMENT 34.07                   SIEVED 29.51ROCK PERCENT 21.49



IDENTIFICATION          T E N S I O N S  (BARS)
                                                                          BD          TP        K
13  28   3   2       .1         .3         .6         3.        15.      G/CC        PCT     IN/HR

     DEPTH                                                                 1
      0             31.62      28.99      25.51      23.27      23.41*    1.33       49.81      .04
                    42.05      38.55      33.92      30.94      31.13     1.39       47.55      .13
                    FRAGMENT 27.53                   SIEVED 15.91ROCK PERCENT 28.73
                                                                           1
      3             39.50      36.87      31.99      31.84      23.40     1.13       57.36      .46
                    44.63      41.66      36.14      35.97      26.44     1.28       51.70     2.27
                    FRAGMENT 39.52                   SIEVED 27.04ROCK PERCENT 24.71
                                                                           1
     22             39.62      36.50      35.41      33.71      31.28     1.06       60.00      .52
                    41.99      38.69      37.53      35.73      33.15     1.19       55.09      .98
                    FRAGMENT 33.81                   SIEVED 28.42ROCK PERCENT 23.36
                                                *RERUN AS 22.38

      1=FIST
      2=CORE
      3=LOOSE
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FLUVANNA FINE SANDY LOAM (13,29,C,a)

Location: Louisa Co., Fosters Creek Watershed, in meadow 150 yds. N of Rt. 607 and 175' W of E line fence of Aubrey Glass farm.
Vegetation and land use: Cropland
Topography: Gently sloping
Drainage: Well drained
Parent Material: Mixed hornblende gneiss and sericite schist
Described and sampled by: E. H. Brunger, L. B. Davis, J. B. Burford

Horizon	Description
Ap	0 to 7 inches. Grayish brown (2.5Y 5/2) fine sandy loam; moderate medium granular structure; very friable; abundant fine roots; about 5 percent angular quartz fragments up to 1" in diameter; clear smooth boundary.
A3	7 to 10 inches. Light olive brown (2.5Y 5/4) fine sandy loam; weak medium granular structure; friable; abundant fine roots; about 10 percent angular quartz fragments up to 1-1/2" in diameter; clear smooth boundary.
B1	10 to 15 inches. Yellowish brown (10YR 5/6) clay loam; weak medium and fine subangular blocky structure; friable when moist, slightly hard when dry; faint patchy clay films; common fine roots; few angular quartz fragments up to 1" in diameter; clear wavy boundary.
B21t	15 to 24 inches. Dark yellowish brown (10YR 4/4) silty clay with many distinct medium mottles of yellowish red (5YR 4/6) and pale brown (10YR 6/3); moderate medium subangular blocky structure; firm when moist, sticky and slightly plastic when wet; hard when dry; distinct continuous clay films; few fine roots; few small subangular quartz fragments; gradual wavy boundary.
B22t	24 to 43 inches. Strong brown (7.5YR 5/6) and yellowish red (5YR 4/6) silty clay; with common distinct, medium mottles of yellowish brown (10YR 5/6), and dark grayish brown (2.5Y 4/2); moderate medium angular and subangular blocky structure with strong tendency to platiness; firm when moist; sticky and plastic when wet, hard when dry; distinct continuous clay films; few small quartz fragments; gradual wavy boundary.
B3	43 to 60 inches. Yellowish red (5YR 4/6) silty clay loam; with common, distinct, medium mottles of red (2.5YR 4/6) and dark yellowish brown (10YR 4/4); weak medium angular blocky structure, with some rock structure; friable; faint discontinuous clay films; few small quartz fragments; gradual irregular boundary.
C	60 to 70 inches plus. Red and yellowish brown sericite schist and hornblende gneiss.

FLUVANNA FINE SANDY LOAM (13,29,C,a)

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      WEIGHT  PERCENT  AND  VOLUME  PERCENT  OF  WATER  RETAINED

IDENTIFICATION        T E N S I O N S  (BARS)
                                                                    BD        TP       K
13  29   2   1       .1         .3        .6         3.        15.       G/CC      PCT     IN/HR

     DEPTH                                                                  1
      0             21.68      17.09      14.81      13.27      10.32      1.53      42.26      .59
                    33.17      26.14      22.65      20.30      15.78      1.59      40.00     1.22
                    FRAGMENT 16.79                     SIEVED   5.91ROCK PERCENT 20.75
                                                                            1
      7             19.01      14.66      13.21      10.00       8.13      1.44      45.66      .66
                    27.37      21.11      19.02      14.40      11.70      1.59      40.00      .57
                    FRAGMENT 14.61                     SIEVED   6.33ROCK PERCENT 26.26
                                                                            1
     10             23.84      18.67      16.15      15.45       5.25*     1.40      47.17      .59
                    33.37      26.13      22.61      21.63       7.35      1.48      44.15     1.28
                    FRAGMENT 20.20                     SIEVED  12.54ROCK PERCENT 27.94
                                                                            1
     15             30.32      27.12      24.41      23.37      23.28      1.32      50.19     1.03
                    40.02      35.79      32.22      30.84      30.72      1.43      46.04      .84
                    FRAGMENT 27.81                     SIEVED  21.71ROCK PERCENT 24.10
                                                                            1
     24             37.17      37.30      35.93      35.29      29.85      1.33      49.81      .58
                    49.43      49.60      47.78      46.93      39.70      1.39      47.55      .81
                    FRAGMENT 35.59                     SIEVED  29.21ROCK PERCENT 12.83
                                                                            1
     43             41.98      39.06      37.03      34.94      33.00      1.29      51.32      .41
                    54.15      50.38      47.76      45.07      42.57      1.38      47.92      .60
                    FRAGMENT 36.24                     SIEVED  28.64ROCK PERCENT 27.02
                                                                            1
     60             36.98      30.18      25.92      24.57      17.66      1.37      48.30      .06
                    50.66      41.34      35.51      33.66      24.19      1.49      43.77      .15
                    FRAGMENT 27.23                     SIEVED  17.62ROCK PERCENT 22.45
                                                      *RERUN AS 12.60

      1=FIST
      2=CORE
      3=LOOSE
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FLUVANNA FINE SANDY LOAM (13,29,C,b)

Location: Louisa Co., Fosters Creek Watershed, in meadow 150 yds. N of Rt. 607 and 125' W of the E line fence of Aubrey Glass farm.
Vegetation and land use: Red clover, fescue, orchard grass, lespedeza
Topography: Gently sloping
Drainage: Well drained
Parent Material: Mixed hornblende gneiss and sericite schist
Described and sampled by: E. H. Brunger, L. B. Davis, J. B. Burford

Horizon	Description
Ap	0 to 7 inches. Grayish brown (2.5YR 5/2) fine sandy loam; moderate medium granular structure; very friable; abundant fine roots; about 5 percent angular quartz fragments up to 1" in diameter; abrupt smooth boundary.
A3	7 to 11 inches. Light olive brown (2.5YR 5/4) very fine sandy loam; weak medium granular structure; friable; common fine roots; about 10 percent angular quartz fragments up to 1" in diameter; clear smooth boundary.
B21t	11 to 18 inches. Strong brown (7.5YR 5/6) silty clay; moderate medium subangular blocky structure; firm when moist, hard when dry, slightly sticky and plastic when wet; distinct discontinuous clay films; common fine roots; few angular quartz fragments up to 1" in diameter; clear irregular boundary.
B22t	18 to 39 inches. Yellowish brown (10YR 5/6) silty clay, with distinct medium mottles of strong brown (7.5YR 5/6),brown (10YR 4/3) and yellowish red (5YR 4/6); moderate fine and medium angular and subangular blocky structure with tendency to platiness; firm when moist, hard when dry, sticky and plastic when wet; distinct continuous clay films; few fine roots; few angular quartz fragments; few schist fragments; gradual wavy boundary.
B3	39 to 56 inches. Yellowish red (5YR 4/6) silty clay loam, with common distinct medium mottles of strong brown (7.5YR 5/6), brown (7.5YR 4/4), and dark yellowish brown (10YR 4/4); weak medium angular blocky structure; with some weathered schist rock structure; friable; faint discontinuous clay films; clear irregular boundary.
C	56 to 70 inches plus. Red, pale yellow, light gray partly weathered sericite schist and hornblende gneiss.

FLUVANNA FINE SANDY LOAM (13,29,C,b)

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      WEIGHT  PERCENT  AND  VOLUME  PERCENT  OF  WATER  RETAINED

IDENTIFICATION        T E N S I O N S  (BARS)
                                                                     BD       TP       K
13  29   2   2     .1        .3        .6        3.        15.      G/CC     PCT     IN/HR

     DEPTH                                                              1
      0            21.03     16.45     14.17     13.18      3.92     1.50     43.40    2.03
                   31.54     24.67     21.25     19.77      5.88     1.56     41.13    2.36
                   FRAGMENT  16.91                SIEVED    4.11ROCK PERCENT  12.16
                                                                        1
      7            19.99     15.46     14.72     12.45      9.67     1.43     46.04     .25
                   28.58     22.10     21.04     17.80     13.82     1.56     41.13     .49
                   FRAGMENT  16.97                SIEVED    9.75ROCK PERCENT  27.29
                                                                        1
     11            23.98     21.68     18.84     17.88     15.67     1.30     50.94    1.24
                   31.17     28.18     24.49     23.24     20.37     1.44     45.66     .31
                   FRAGMENT  24.57                SIEVED   16.38ROCK PERCENT  15.62
                                                                        1
     18            39.75     38.97     36.09     33.89     25.81     1.24     53.21     .86
                   49.29     48.32     44.75     42.02     32.00     1.37     48.30     .43
                   FRAGMENT  35.15                SIEVED   30.18ROCK PERCENT  21.49
                                                                        1
     39            39.41     34.74     32.49     31.57     26.94     1.25     52.83     .31
                   49.26     43.42     40.61     39.46     33.67     1.38     47.92     .92
                   FRAGMENT  33.49                SIEVED   21.77ROCK PERCENT  29.70
                                                                        1
     56            34.04     26.66     19.95     18.30     16.67     1.29     51.32     .17
                   43.91     34.39     25.73     23.60     21.50     1.36     48.68     .48
                   FRAGMENT  24.92                SIEVED   10.28ROCK PERCENT  21.98

     1=FIST
     2=CORE
     3=LOOSE
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FLUVANNA FINE SANDY LOAM (13,29,F,a)

Location: Louisa Co., Fosters Creek Watershed, in woods 20' S of N line fence and 15' W of cross fence of Aubrey Glass farm.
Vegetation and land use: Mixed oak forest (grazed)
Topography: Gently rolling
Drainage: Well drained
Parent Material: Mixed hornblende gneiss and sericite schist
Described and sampled by: E. H. Brunger, L. B. Davis, J. B. Burford

Horizon	Description
01	2 to 1/2 inches. Mixed oak leaf litter.
02	1/2 to 0 inch. Partly decomposed leaf litter.
A2	0 to 8 inches. Light yellowish brown (2.5YR 6/4) fine sandy loam; moderate fine granular structure; very friable; abundant fine to coarse roots; few angular quartz fragments; clear smooth boundary.
A3	8 to 12 inches. Light olive brown (2.5YR 5/4) light fine sandy clay loam; weak fine granular structure; friable; common medium and coarse roots; few angular quartz fragments; clear smooth boundary.
B1	12 to 17 inches. Yellowish brown (10YR 5/8) silty clay loam; moderate medium and fine subangular blocky structure; friable when moist, slightly hard when dry, slightly sticky and slightly plastic when wet; distinct continuous clay films; few medium roots; few angular quartz fragments; gradual wavy boundary.
B21t	17 to 24 inches. Yellowish brown (10YR 5/6) silty clay; moderate medium and fine subangular blocky structure; firm when moist, hard when dry, and sticky and plastic when wet; evident continuous clay films; few coarse roots; few small subangular quartz fragments; gradual wavy boundary.
B22t	24 to 35 inches. Light olive brown (2.5Y 5/6) silty clay with many distinct fine mottles of reddish brown (5YR 5/4); strong fine and medium angular blocky structure, with strong tendency to platiness; firm when moist, hard when dry, sticky and plastic when wet; prominent continuous clay films; few fine roots; gradual wavy boundary.
B3t	35 to 48 inches. Light olive brown (2.5Y 5/6) clay, with many distinct mottles of yellowish brown (10YR 5/8) and yellowish red (5YR 4/8); weak medium and coarse angular blocky structure with inclusions of weathered hornblende gneiss and schist, with rock structure; firm when moist, hard when dry, sticky and very plastic when wet; prominent discontinuous clay films; gradual wavy boundary.
C	48 to 48 inches plus. Yellowish brown, yellowish red, light olive brown and very pale brown weathered interbedded hornblende gneiss and sericite schist.

FLUVANNA FINE SANDY LOAM (13,29,F,a)

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      WEIGHT  PERCENT  AND  VOLUME  PERCENT  OF  WATER  RETAINED

IDENTIFICATION        T E N S I O N S  (BARS)
                                                                 BD        TP        K
13  29   3   1      .1        .3        .6        3.        15.        G/CC      PCT      IN/HR

    DEPTH                                                             1
     0            20.50     17.79     11.45      8.10      3.50      1.42     46.42      .03
                  29.11     25.26     16.25     11.50      4.97      1.46     44.91      .19
                  FRAGMENT  18.69               SIEVED    4.85ROCK  PERCENT  17.00
                                                                      1
     8            18.74     16.98     11.31     10.84      6.04      1.50     43.40      .20
                  28.11     25.47     16.96     16.26      9.06      1.55     41.51      .24
                  FRAGMENT  16.91               SIEVED    7.50ROCK  PERCENT  29.62
                                                                      1
    12            24.44     24.33     20.81     20.14     18.03      1.59     40.00      .24
                  38.85     38.68     33.08     32.02     28.66      1.69     36.23      .17
                  FRAGMENT  23.18               SIEVED   26.74ROCK  PERCENT  29.80
                                                                      1
    17            31.64     29.77     26.21     25.71     24.58      1.31     50.57      .32
                  41.44     38.99     34.33     33.68     32.19      1.51     43.02      .52
                  FRAGMENT  31.55               SIEVED   27.45ROCK  PERCENT  30.26

      1=FIST
      2=CORE
      3=LOOSE
```

FLUVANNA FINE SANDY LOAM (13,29,F,b)

Location: Louisa Co., Fosters Creek Watershed, on Aubrey Glass farm, 20' S of N line fence and 10' E of cross fence.
Vegetation and land use: Mixed oak forest
Topography: Gently rolling
Drainage: Well drained
Parent Material: Mixed hornblende gneiss and sericite schist
Described and sampled by: E. H. Brunger, L. B. Davis, J. B. Burford

Horizon	Description
01	2 to 1/2 inches. Mixed oak leaf litter.
02	1/2 to 0 inch. Partly decomposed leaf litter.
A1	0 to 1-1/2 inch. Gray (5YR 5/1) fine sandy loam; moderate fine granular structure; very friable; abundant fine and medium roots; about 10 percent angular quartz fragments up to 1" in diameter; abrupt smooth boundary.
A2	1-1/2 to 8 inches. Light yellowish brown (2.5YR 6/4) fine sandy loam; moderate fine granular structure; very friable; abundant fine and medium roots; about 15 percent angular quartz fragments up to 1-1/2" in diameter; gradual smooth boundary.
B1	8 to 12 inches. Yellowish brown (10YR 5/6) clay loam; weak medium subangular blocky structure; friable when moist, slightly hard when dry, slightly plastic when wet; faint discontinuous clay films; common fine and medium roots; about 5 percent angular quartz fragments; gradual smooth boundary.
B21t	12 to 21 inches. Strong brown (7.5YR 5/6) silty clay; moderate to strong fine and medium subangular blocky structure; firm when moist, hard when dry, slightly sticky and slightly plastic when wet; distinct continuous clay films; few fine roots; gradual wavy boundary.
B22t	21 to 30 inches. Strong brown (7.5YR 5/6) silty clay, with common, faint, fine mottles of brownish yellow (10YR 6/6) and yellowish red (5YR 5/6); moderate medium and fine angular blocky structure with slight tendency to platiness; firm when moist, hard when dry, sticky and slightly plastic when wet; distinct discontinuous clay films; few fine roots; few small quartz gravel; gradual wavy boundary.
B23t	30 to 38 inches. Strong brown (7.5YR 5/6) silty clay, with common, medium, distinct mottles of brownish yellow (10YR 6/6) and yellowish red (5YR 5/6); moderate fine and medium angular blocky structure with strong tendency to platiness; firm when moist, hard when dry, sticky and plastic when wet; distinct discontinuous clay films; few quartz fragments; gradual wavy boundary.
B3	38 to 46 inches. Yellowish brown (10YR 5/8) silty clay, with common medium distinct mottles of brownish yellow (10YR 6/6) and red (2.5YR 4/8); weak medium angular blocky structure with strong tendency to platiness; firm when moist, slightly sticky and plastic when wet; distinct discontinuous clay films; gradual wavy boundary.
C	46 to 54 inches plus. Yellowish brown, brownish yellow, and red weathered interbedded hornblende gneiss and sericite schist.

FLUVANNA FINE SANDY LOAM (13,29,F,b)

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      WEIGHT  PERCENT  AND  VOLUME  PERCENT  OF  WATER  RETAINED

   IDENTIFICATION       T E N S I O N S  (BARS)
                                                                BD         TP        K
   13  29   3   2     .1        .3        .6        3.        15.       G/CC       PCT     IN/HR

        DEPTH                                                            3
          0           29.99     21.25     18.90     11.46     5.81      1.07      59.62
                      32.08     22.73     20.22     12.26     6.21
                      FRAGMENT                       SIEVED   5.89ROCK PERCENT 24.50
                                                                         1
          2           24.07     19.42     18.18     17.76     3.91      1.34      49.43     .21
                      32.25     26.02     24.36     23.79     5.23      1.39      47.55    1.32
                      FRAGMENT 25.38                 SIEVED   4.34ROCK PERCENT 25.01
                                                                         1
          8           22.05     17.64     16.87     10.90     6.65      1.60      39.62     .28
                      35.28     28.22     26.99     17.44    10.64      1.65      37.74     .46
                      FRAGMENT 16.89                 SIEVED   8.55ROCK PERCENT 28.38
                                                                         1
         12           24.59     24.13     21.05     20.25    17.33      1.48      44.15     .40
                      36.39     35.71     31.15     29.97    25.64      1.56      41.13    1.27
                      FRAGMENT 25.03                 SIEVED  17.47ROCK PERCENT 25.64

      1=FIST
      2=CORE
      3=LOOSE
```

NASON SILT LOAM (13,30,C,a)

Location: Louisa Co., Fosters Creek Watershed, on west farm in field 125' SW of corner of pasture fence.
Vegetation and land use: Orchard grass
Topography: Gently sloping
Drainage: Well drained
Parent Material: Sericite schist
Described and sampled by: L. B. Davis, J. W. Wills, J. B. Burford

Horizon	Description
Ap	0 to 7 inches. Brown (10YR 5/3) silt loam; moderate medium and fine granular structure; very friable; abundant medium and fine roots; about 5 percent angular quartz fragments up to 1" in diameter; clear smooth boundary.
B1	7 to 11 inches. Strong brown (7.5YR 5/6) silty clay loam; friable; moderate fine subangular blocky structure; abundant fine roots; about 5 percent angular quartz fragments; gradual smooth boundary.
B21	11 to 15 inches. Yellowish red (5YR 4/6) silty clay loam; moderate medium and fine subangular blocky structure; friable when moist, slightly sticky and slightly plastic when wet; evident continuous clay films; common fine roots; few angular quartz fragments; gradual wavy boundary.
B22t	15 to 23 inches. Yellowish red (5YR 4/6) heavy silty clay loam with few fine faint mottles of red (2.5YR 4/6) and strong brown (7.5YR 5/8); moderate fine and medium subangular blocky and angular blocky structure; friable when moist, slightly sticky and slightly plastic when moist; evident continuous clay films; few fine roots; few angular quartz fragments; gradual wavy boundary.
B23t	23 to 35 inches. Yellowish red (5YR 4/6) heavy silty clay loam with common fine faint mottles of red (2.5YR 4/6) and dark yellowish brown (10YR 4/4); moderate fine subangular and angular blocky structure with a tendency toward platiness; friable when moist, slightly sticky and slightly plastic when wet; evident discontinuous clay films; few angular quartz fragments; few weathered schist fragments; gradual wavy boundary.
B3	35 to 41 inches. Red (2.5YR 4/8) silty clay loam; weak fine angular blocky structure; friable; faint patchy clay films; few quartz fragments up to 2" in diameter; common weathered schist fragments; gradual irregular boundary.
C	41 inches plus. Slightly weathered red, yellowish brown, and gray schist.

BLACKSBURG, VIRGINIA

NASON SILT LOAM (13,30,C,a)

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     WEIGHT  PERCENT  AND  VOLUME  PERCENT  OF  WATER  RETAINED

IDENTIFICATION        T E N S I O N S  (BARS)
                                                                  BD        TP       K
13  30   2   1     .1        .3        .6        3.        15.      G/CC      PCT    IN/HR

     DEPTH                                                          1
       0          21.17     16.66     14.74     13.21      8.04     1.51     43.02    1.11
                  31.96     25.15     22.25     19.94     12.14     1.56     41.13     .96
                  FRAGMENT  16.58               SIEVED     9.74ROCK PERCENT  33.20
                                                                    1
       7          18.59     17.27     12.34     11.79      8.06     1.52     42.64     .30
                  28.25     26.25     18.75     17.92     12.25     1.55     41.51     .42
                  FRAGMENT  17.28               SIEVED     7.98ROCK PERCENT  30.57
                                                                    1
      11          32.68     28.57     26.29     25.64     22.79     1.32     50.19     0
                  43.13     37.71     34.70     33.84     30.08     1.42     46.42     .46
                  FRAGMENT  30.67               SIEVED    22.85ROCK PERCENT  37.86
                                                                    1
      15          38.27     36.05     35.15     33.45     30.01     1.16     56.23     .22
                  44.39     41.81     40.77     38.80     34.81     1.27     52.08     .04
                  FRAGMENT  39.43               SIEVED    30.97ROCK PERCENT  24.56

        1=FIST
        2=CORE
        3=LOOSE
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NASON SILT LOAM (13,30,C,b)

Location: Louisa Co., Fosters Creek Watershed, on west farm in field 125' SW of corner of pasture fence.
Vegetation and land use: Orchard grass
Topography: Gently sloping
Drainage: Well drained
Parent Material: Sericite schist
Described and sampled by: L. B. Davis, J. W. Wills, J. B. Burford

Horizon	Description
Ap	0 to 6 inches. Brown (10YR 5/3) silt loam; moderate medium and fine granular structure; very friable; abundant medium and fine roots; 5 percent angular quartz fragments up to 1" in diameter; clear smooth boundary.
B1	6 to 10 inches. Strong brown (7.5YR 5/6) light silty clay loam; moderate fine and medium subangular blocky structure; friable; abundant fine roots; 5 percent angular quartz fragments up to 1" in diameter; clear smooth boundary.
B21	10 to 16 inches. Yellowish red (5YR 4/6) silty clay loam; moderate fine and medium subangular blocky structure; friable when moist, slightly sticky and slightly plastic when wet; distinct continuous clay films; common fine roots; few angular quartz fragments; gradual wavy boundary.
B22t	16 to 26 inches. Yellowish red (5YR 4/6) silty clay loam; moderate medium and fine subangular blocky structure; friable when moist; sticky and slightly plastic when wet; distinct continuous clay films; common fine roots; few small angular quartz gravel; few weathered schist fragments; gradual wavy boundary.
B3	26 to 40 inches. Red (2.5YR 2/6) silty clay loam; weak fine and medium subangular blocky structure with a slight tendency toward platiness; faint patchy clay films; common weathered schist fragments; gradual irregular boundary.
C	40 to 56 inches plus. Red, yellowish brown, and gray weathered serecite schist.

BLACKSBURG, VIRGINIA

NASON SILT LOAM (13,30,C,b)

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     WEIGHT  PERCENT  AND  VOLUME  PERCENT  OF  WATER  RETAINED

IDENTIFICATION        T E N S I O N S  (BARS)
                                                              BD        TP      K
13  30   2   2     .1       .3       .6       3.       15.      G/CC      PCT    IN/HR

    DEPTH                                                        1
     0            21.13    17.22    11.65    11.41     6.66     1.54     41.89    .57
                  32.54    26.51    17.94    17.57    10.25     1.52     42.64    .82
                  FRAGMENT 16.38             SIEVED    8.51ROCK PERCENT  33.23
                                                                 1
     6            22.10    17.95    13.71    11.35     9.43     1.59     40.00    .11
                  35.13    28.54    21.79    18.04    14.99     1.61     39.25    .62
                  FRAGMENT 16.24             SIEVED    9.92ROCK PERCENT  30.78
                                                                 1
    10            37.88    36.70    35.70    34.04    29.24     1.27     52.08    .12
                  48.10    46.60    45.33    43.23    37.13     1.30     50.94    0
                  FRAGMENT 38.52             SIEVED   29.65ROCK PERCENT  35.87
                                                                 1
    16            42.19    39.37    38.88    38.42    29.43     1.14     56.98    .08
                  48.09    44.88    44.32    43.79    33.55     1.23     53.58    .50
                  FRAGMENT 40.32             SIEVED   31.64ROCK PERCENT  19.80

     1=FIST
     2=CORE
     3=LOOSE
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NASON SILT LOAM (13,30,F,a)

Location: Louisa Co., Fosters Creek Watershed, on Minor Diggs' farm, in woods 250 yds. NW of Carter's chicken house.
Vegetation and land use: Mixed oak forest
Topography: Gently sloping
Drainage: Well drained
Parent Material: Sericite schist
Described and sampled by: E. H. Brunger, L. B. Davis, J. B. Burford

Horizon	Description
02	2 to 1/2 inches. Mixed oak leaf litter.
01	1/2 to 0 inch. Partly decomposed leaf litter.
A1	0 to 1-1/2 inch. Dark grayish brown (2.5Y 4/2) silt loam; moderate fine granular structure; very friable; abundant fine and medium roots; about 15 percent angular quartz fragments up to 2" in diameter; abrupt smooth boundary.
A2	1-1/2 to 7-1/2 inches. Light yellowish brown (2.5Y 6/4) silt loam; moderate fine granular structure; very friable; abundant fine to coarse roots; about 15 percent angular quartz fragments up to 3" in diameter; clear smooth boundary.
B1	7-1/2 to 11 inches. Strong brown (7.5YR 5/6) silty clay loam; weak fine subangular blocky structure; friable; abundant fine and medium roots; about 10 percent angular quartz fragments up to 2" in diameter; few partially weathered schist fragments; gradual smooth boundary.
B21t	11 to 22 inches. Yellowish red (5YR 4/8) silty clay loam; moderate medium and fine subangular blocky structure; friable when moist, slightly sticky and slightly plastic when wet; distinct continuous clay films; common fine and medium roots; about 5 percent quartz fragments up to 2" in diameter; some weathered and partly weathered schist fragments; gradual wavy boundary.
B22t	22 to 27 inches. Yellowish red (5YR 4/6) silty clay loam with few fine faint mottles of strong brown (7.5YR 5/6); moderate medium and fine angular and subangular blocky structure; friable when moist, slightly sticky and slightly plastic when wet; evident discontinuous clay films; few fine roots; about 5 percent quartz fragments up to 2" in diameter; few slightly weathered schist fragments; gradual wavy boundary.
B3	27 to 36 inches. Yellowish red (5YR 4/8) silty clay loam; weak medium angular blocky structure; friable; faint patchy clay films; about 5 percent quartz slightly weathered schist fragments; gradual wavy boundary.
C	36 to 50 inches. Yellowish red, yellowish brown, and gray slightly weathered sericite schist.
R	50 inches plus. Hard sericite schist.

BLACKSBURG, VIRGINIA

NASON SILT LOAM (13,30,F,a)

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       WEIGHT  PERCENT  AND  VOLUME  PERCENT  OF  WATER  RETAINED

IDENTIFICATION        T E N S I O N S  (BARS)
                                                                    BD        TP        K
13  30   3   1      .1       .3        .6        3.        15.     G/CC      PCT     IN/HR

    DEPTH                                                             3
      0            33.99    24.34     21.64     16.03     10.24      .86     67.55
                   29.23    20.93     18.61     13.78      8.80
                   FRAGMENT                      SIEVED 10.61ROCK PERCENT 41.86
                                                                      1
      1            23.64    19.78     16.60      8.80      4.25     1.50     43.40       .11
                   35.46    29.67     24.90     13.20      6.37     1.53     42.26       .60
                   FRAGMENT 17.47                SIEVED  4.00ROCK PERCENT 31.51
                                                                      1
      7            23.89    20.85     19.82     14.43      9.15     1.47     44.53       .30
                   35.11    30.64     29.13     21.21     13.45     1.55     41.51       .07
                   FRAGMENT 20.62                SIEVED  8.43ROCK PERCENT 28.11
                                                                      1
     11            34.01    32.31     31.91     28.98     27.39     1.32     50.19       .41
                   44.89    42.64     42.12     38.25     36.15     1.45     45.28       .74
                   FRAGMENT 30.67                SIEVED 28.50ROCK PERCENT 42.41
                                                                      1
     22            34.84    32.29     31.90     30.66     28.90     1.35     49.06       .86
                   47.03    43.59     43.06     41.39     39.01     1.47     44.53       .64
                   FRAGMENT 31.29                SIEVED 26.25ROCK PERCENT 11.04
                                                                      1
     27            35.75    29.93     27.57     26.58     25.36     1.31     50.57       .26
                   46.83    39.20     36.11     34.81     33.22     1.41     46.79      1.14
                   FRAGMENT 27.18                SIEVED 30.31ROCK PERCENT 10.85
                                                                      1
     36            35.33    34.79     25.30     23.66     22.07     1.34     49.43       .23
                   47.34    46.61     33.90     31.70     29.57     1.51     43.02       .22
                   FRAGMENT 34.32                SIEVED 13.98ROCK PERCENT 12.04
                                                       (22.80)

       1=FIST
       2=CORE
       3=LOOSE
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NASON SILT LOAM (13,30,F,b)

Location: Louisa Co., Fosters Creek watershed, on Minor Diggs' farm, in woods 250 yds. NW of Carter's chicken house.
Vegetation and land-use: Hardwood forest
Topography: Gently sloping
Drainage: Well drained
Parent Material: Sericite schist
Described and sampled by: L. B. Davis, J. W. Wills, E. H. Brunger, J. B. Burford

Horizon	Description
01	2 to 1/2 inches. Mixed oak leaf litter.
02	1/2 to 0 inch. Partly decomposed leaf litter.
A1	0 to 1-1/2 inch. Dark grayish brown (2.5Y 4/2) silt loam; moderate fine granular structure; very friable; abundant fine and medium roots; about 10 percent angular quartz fragments up to 1-1/2" in diameter; abrupt smooth boundary.
A2	1-1/2 to 8 inches. Light yellowish brown (2.5Y 6/4) silt loam; moderate fine granular structure; very friable; abundant fine and medium roots; about 10 percent angular quartz fragments up to 1-1/2" in diameter; gradual smooth boundary.
B1	8 to 12 inches. Strong brown (7.5YR 5/6) light silty clay loam; moderate fine subangular blocky structure; friable; abundant fine and medium roots; few angular quartz fragments up to 1" in diameter; gradual smooth boundary.
B21t	12 to 17 inches. Yellowish red (5YR 4/6) silty clay loam; moderate fine and medium subangular blocky structure; friable when moist; slightly sticky and slightly plastic when wet; evident continuous clay films; common fine and medium roots; few angular quartz fragments; few weathered schist fragments; gradual wavy boundary.
B22t	17 to 29 inches. Yellowish red (5YR 4/6) heavy silty clay loam with few fine faint mottles of strong brown (7.5YR 5/6); moderate fine and medium subangular blocky structure; friable when moist, sticky and slightly plastic when wet; evident continuous clay films; few fine roots; few quartz fragments; few schist fragments; gradual wavy boundary.
B3	29 to 37 inches. Yellowish red (5YR 4/6) silty clay loam; weak medium subangular blocky structure; friable; faint patchy clay films; common weathered schist fragments; gradual wavy boundary.
C	37 to 52 inches plus. Red, yellowish brown, and gray weathered sericite schist.

NASON SILT LOAM (13,30,F,b)

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    WEIGHT  PERCENT  AND  VOLUME  PERCENT  OF  WATER  RETAINED

IDENTIFICATION        T E N S I O N S  (BARS)
                                                                BD       TP         K
13  30   3   2      .1       .3       .6       3.       15.      G/CC     PCT      IN/HR

     DEPTH                                                           3
       0           33.33    26.38    23.80    14.07    10.49     .90     66.04
                   29.99    23.74    21.42    12.66     9.44
                   FRAGMENT                      SIEVED  9.61ROCK PERCENT 19.58
                                                                     1
       1           23.38    19.02    11.57     9.59     4.00     1.49     43.77       .68
                   34.83    28.33    17.23    14.28     5.96     1.52     42.64       .54
                   FRAGMENT 16.76                SIEVED  4.20ROCK PERCENT 23.98
                                                                     1
       8           21.42    18.14    12.21    11.85     8.84     1.50     43.40       .26
                   32.13    27.21    18.31    17.77    13.26     1.51     43.02       .31
                   FRAGMENT 15.83                SIEVED  7.98ROCK PERCENT 31.59
                                                                     1
      12           24.58    23.25    21.10    20.43    16.80     1.39     47.55       .20
                   34.16    32.31    29.32    28.39    23.35     1.45     45.28       .28
                   FRAGMENT 23.48                SIEVED 16.34ROCK PERCENT 35.81
                                                                     1
      17           31.11    29.62    28.25    27.48    27.84     1.41     46.79       .15
                   43.86    41.76    39.83    38.74    39.25     1.47     44.53       .34
                   FRAGMENT 27.14                SIEVED 25.47ROCK PERCENT 25.67
                                                                     1
      29           35.96    30.39    29.75    28.65    27.50     1.34     49.43       .42
                   48.18    40.72    39.86    38.39    36.85     1.37     48.30       .42
                   FRAGMENT 31.23                SIEVED 30.28ROCK PERCENT 10.50
                                                                     1
      37           35.99    35.03    25.86    24.10    22.33     1.34     49.43       .31
                   48.22    46.94    34.65    32.29    29.92     1.42     46.42       .11
                   FRAGMENT 32.54                SIEVED 21.79ROCK PERCENT 49.72

    1=FIST
    2=CORE
    3=LOOSE
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PENN SILT LOAM (13,31,P,a and b)

Location: Culpeper Co., Pony Mountain Branch Watershed, on Don Wall farm; 250 yds. SW of streamgage station and 250 yds. W of barn. Pit b 20' W of pit a.
Vegetation and land use: Pasture
Topography: Gently sloping
Drainage: Somewhat excessively drained
Parent Material: Triassic shale
Described and sampled by: E. H. Brunger, L. B. Davis, J. B. Burford

Horizon	Description
Pit a	
Ap	0 to 7 inches. Dark reddish brown (5YR 3/3) silt loam; moderate medium granular structure; very friable; abundant fine roots; common fine shale fragments; abrupt smooth boundary.
AC	7 to 13 inches. Dark reddish brown (5YR 3/3) silt loam; weak coarse granular structure; friable; common fine roots; abundant shale fragments; few medium pores; clear wavy boundary.
C	13 to 38 inches. Dark reddish brown (5YR 3/3) weathered triassic shale which breaks down to silt loam texture; gradual wavy boundary.
R	38 inches plus. Dark reddish brown (5YR 3/3) triassic shale.
Pit b	
Ap	0 to 7 inches. Dark reddish brown (5YR 3/3) silt loam; moderate medium granular structure; very friable; abundant fine roots; common fine shale fragments; abrupt smooth boundary.
AC	7 to 12 inches. Dark reddish brown (5YR 3/3) silt loam; weak coarse granular structure; friable; common fine roots; abundant shale fragments; few medium pores; clear wavy boundary.
C	12 to 21 inches. Weak red (2.5YR 4/2) weathered triassic shale which breaks down to silt loam texture; few fine roots; gradual irregular boundary.
R	21 inches plus. Weak red (2.5YR 4/2) triassic shale.

PENN SILT LOAM (13,31,P,a and b)

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     WEIGHT  PERCENT  AND  VOLUME  PERCENT  OF  WATER  RETAINED

IDENTIFICATION        T E N S I O N S  (BARS)
                                                              BD        TP        K
13  31   1   1     .1        .3        .6        3.        15.       G/CC      PCT     IN/HR

    DEPTH                                                               1
     0             29.34     25.48     23.74     20.12     13.10     1.37      48.30      .13
                   40.19     34.90     32.52     27.56     17.94     1.54      41.89      .78
                   FRAGMENT  28.02                SIEVED   12.22ROCK PERCENT  18.92
                                                                        1
     7             34.34     29.69     28.67     23.17     15.23     1.20      54.72      .45
                   41.20     35.62     34.40     27.80     18.27     1.29      51.32      .70
                   FRAGMENT  32.85                SIEVED   17.15ROCK PERCENT  31.58
                                                                        1
    13             39.24     36.20     34.14     28.22     15.70     1.08      59.25      .75
                   42.37     39.09     36.87     30.47     16.95     1.17      55.85      .35
                   FRAGMENT  36.50                SIEVED   20.86ROCK PERCENT  30.50


IDENTIFICATION        T E N S I O N S  (BARS)
                                                              BD        TP        K
13  31   1   2     .1        .3        .6        3.        15.       G/CC      PCT     IN/HR

    DEPTH                                                               1
     0             29.41     25.90     23.66     20.23     12.55     1.45      45.28      .56
                   42.64     37.55     34.30     29.33     18.19     1.52      42.64      .57
                   FRAGMENT  24.90                SIEVED   12.10ROCK PERCENT   9.24
                                                                        1
     7             34.74     29.89     29.32     25.74     17.10     1.23      53.58      .68
                   42.73     36.76     36.06     31.66     21.03     1.32      50.19      .63
                   FRAGMENT  31.51                SIEVED   19.06ROCK PERCENT  28.55
                                                                        1
    12             41.61     39.39     37.77     26.86     17.23     1.19      55.09      .09
                   49.51     46.87     44.94     31.96     20.50     1.27      52.08      .28
                   FRAGMENT  38.03                SIEVED   20.94ROCK PERCENT  25.15


     1=FIST
     2=CORE
     3=LOOSE
```

CATLETT SILT LOAM (13,32,P,a and b)

Location: Culpeper Co., Pony Mountain Branch Watershed, on Don Wall farm, 250' N of forest line; pits a and b 100 and 102 yds. E of division fence, resp.
Vegetation and land use: Pasture
Topography: Gently sloping
Drainage: Excessively drained
Parent Material: Baked triassic shale
Described and sampled by: E. H. Brunger, L. B. Davis, J. B. Burford

Pit a

Horizon	Description
Ap	0 to 6 inches. Dark brown (7.5YR 4/2) silt loam; moderate medium granular structure; very friable; abundant fine roots; common shale fragments; clear smooth boundary.
AC	6 to 11 inches. Dark brown (5YR 4/4) shaly silt loam; some weak medium granular structure, some rock structure; friable; common fine roots; common medium pores; abundant shale fragments up to 4" in diameter; gradual wavy boundary.
C	11 to 17 inches. Light greenish gray (5GY 7/1) slightly weathered baked triassic shale.
R	17 inches plus. Hard light greenish gray (5GY 7/1) baked triassic shale.

Pit b

Horizon	Description
Ap	0 to 5 inches. Dark brown (7.5YR 4/2) silt loam; moderate medium granular structure; very friable; abundant fine roots; common shale fragments; few fine pores; clear smooth boundary.
AC	5 to 10 inches. Dark brown (7.5YR 4/4) and strong brown (7.5YR 5/6) shaly silt loam; some weak medium granular structure; some rock structure; friable; common fine roots; few medium pores; abundant shale fragments up to 5" in diameter; gradual wavy boundary.
C	10 to 21 inches. Light greenish gray (5GY 7/1) slightly weathered triassic shale.
R	21 inches plus. Hard light greenish gray (5GY 7/1) baked triassic shale.

CATLETT SILT LOAM (13,32,P,a and b)

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     WEIGHT  PERCENT  AND  VOLUME  PERCENT  OF  WATER  RETAINED

IDENTIFICATION        T E N S I O N S  (BARS)
                                                               BD       TP       K
13  32   1   1     .1       .3       .6       3.       15.    G/CC     PCT     IN/HR

    DEPTH                                                         1
     0            33.87    26.38    24.65    17.51    12.28    1.38    47.92     .43
                  46.74    36.40    34.01    24.16    16.94    1.43    46.04     .44
                  FRAGMENT 26.99                SIEVED 12.57ROCK PERCENT 51.85
                                                                  1
     6            32.12    25.98    24.35    19.21     9.78    1.36    48.68     .27
                  43.68    35.33    33.11    26.12    13.30    1.45    45.28     .56
                  FRAGMENT 27.09                SIEVED 10.57ROCK PERCENT 30.03
                                                                  3
    11            33.20    28.37    26.26    19.99    11.45    1.09    58.87
                  36.18    30.92    28.62    21.78    12.48
                  FRAGMENT                      SIEVED 11.11ROCK PERCENT 42.90



IDENTIFICATION        T E N S I O N S  (BARS)
                                                               BD       TP       K
13  32   1   2     .1       .3       .6       3.       15.    G/CC     PCT     IN/HR

    DEPTH                                                         1
     0            31.34    25.69    22.72    16.31    11.29    1.45    45.28     .80
                  45.44    37.25    32.94    23.64    16.37    1.52    42.64     .54
                  FRAGMENT 27.18                SIEVED  9.30ROCK PERCENT 56.40
                                                                  1
     5            31.16    26.60    24.31    18.22    11.75    1.35    49.06     .13
                  42.06    35.91    32.81    24.59    15.86    1.41    46.79     .23
                  FRAGMENT 27.13                SIEVED 10.87ROCK PERCENT 24.67
                                                                  3
    10            34.86    28.09    26.66    20.09    11.02    1.17    55.85
                  40.78    32.86    31.19    23.50    12.89
                  FRAGMENT                      SIEVED 11.06ROCK PERCENT 42.00

      1=FIST
      2=CORE
      3=LOOSE
```

CROTON SILT LOAM (13,33,P,a and b)

Location: Culpeper Co., Pony Mountain Branch Watershed, on Don Wall farm; pit a 100' S of Hwy. 3 and 100' W of division fence near streamgage; pit b 120' S of Hwy. 3 and 115' W of division fence near streamgage.
Vegetation and land use: Bluegrass pasture
Topography: Nearly level
Drainage: Poorly drained
Parent Material: Triassic shale
Described and sampled by: E. H. Brunger, L. B. Davis, J. B. Burford

Horizon	Description
Pit a	
Ap	0 to 7 inches. Dark grayish brown (10YR 4/2) silt loam; weak medium granular structure; friable; common fine roots; few fine shale fragments; many fine to large pores; abrupt smooth boundary.
B1g	7 to 10 inches. Very dark gray (10YR 3/1) silty clay loam, with common fine distinct mottles of dark brown (7.5YR 4/4) and light gray (10YR 6/1); weak medium angular blocky structure; slightly sticky and slightly plastic when wet, firm when moist, slightly hard when dry; few fine roots; common fine manganese concretions; common medium pores; gradual wavy boundary.
B2t	10 to 19 inches. Dark gray (10YR 4/1) silty clay with common medium distinct mottles of strong brown (7.5YR 5/6) and dark reddish gray (5YR 4/2); weak medium angular blocky structure, and some weak coarse columnar structure when dry; sticky and plastic when wet, firm when moist, very hard when dry; few fine roots; evident discontinuous clay films; few fine roots; few fine red shale fragments; gradual wavy boundary.
B3	19 to 24 inches. Gray (5YR 5/1) silty clay loam with many medium prominent mottles of strong brown (7.5YR 5/6) and reddish brown (5YR 4/3); weak fine and medium angular blocky structure; slightly sticky when wet, also slightly plastic; firm when moist, slightly hard when dry; common red shale fragments up to 3"; gradual wavy boundary.
C	24 to 32 inches. Weak red (2.5YR 4/2) slightly weathered triassic shale.
R	32 inches plus. Hard, weak red (2.5YR 4/2) triassic shale.
Pit b	
Ap	0 to 5 inches. Dark grayish brown (10YR 4/2) silt loam; with few fine faint mottlings of yellowish brown (10YR 5/8); weak medium granular structure; friable; common fine roots; few fine shale fragments; few fine manganese concretions; few medium pores; abrupt smooth boundary.
B1g	5 to 10 inches. Gray (10YR 6/1) silty clay loam, with common fine distinct mottles of brown (10YR 4/3), brown (7.5YR 4/4) and light gray (10YR 7/1); weak medium angular blocky structure; sticky and slightly plastic when wet, friable when moist, hard when dry; few fine roots; common fine and medium pores; common manganese concretions; gradual wavy boundary.
B2t	10 to 17 inches. Gray (5YR 6/1) silty clay, with common medium distinct mottles of brown (7.5YR 4/4) and pinkish gray (7.5YR 6/2); weak medium angular blocky structure; with some weak coarse columnar structure when dry; sticky and plastic when wet, firm when moist, very hard when dry; evident discontinuous clay films; few fine roots; few fine shale fragments; gradual wavy boundary.
C	17 to 25 inches. Weak red (2.5YR 4/2) slightly weathered triassic shale.
R	25 inches plus. Hard, weak red (2.5YR 4/2) triassic shale.

BLACKSBURG, VIRGINIA

CROTON SILT LOAM (13,33,P,a and b)

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     WEIGHT  PERCENT  AND  VOLUME  PERCENT  OF  WATER  RETAINED

IDENTIFICATION        T E N S I O N S  (BARS)
                                                                   BD       TP       K
13  33   1   1     .1       .3       .6       3.       15.       G/CC     PCT    IN/HR

   DEPTH                                                           1
    0             35.18    28.07    25.65    17.01     9.87     1.37    48.30     .58
                  48.19    38.45    35.14    23.30    13.52     1.44    45.66     .63
                  FRAGMENT 26.19              SIEVED 10.12ROCK PERCENT  6.50
                                                                   1
    7             31.79    25.60    24.78    19.76    16.74     1.42    46.42     .11
                  45.14    36.35    35.18    28.05    23.77     1.53    42.26     .24
                  FRAGMENT 25.26              SIEVED 16.53ROCK PERCENT  8.34
                                                                   1
   10             32.25    29.18    28.75    24.41    22.17     1.34    49.43     0
                  43.21    39.10    38.52    32.70    29.70     1.57    40.75
                  FRAGMENT 30.53              SIEVED 21.46ROCK PERCENT 29.14
                                                                   1
   19             29.56    24.41    23.72    21.22    21.18     1.38    47.92     .02
                  40.79    33.68    32.73    29.28    29.22     1.61    39.25     .03
                  FRAGMENT 27.00              SIEVED 21.94ROCK PERCENT 36.71
                                                                   3
   24             23.07    20.09    16.66    16.04     9.04*    1.33    49.81
                  30.68    26.71    22.15    21.33    12.02
                  FRAGMENT                    SIEVED 14.90ROCK PERCENT 66.06
                                                     *RERUN AS 13.57


IDENTIFICATION        T E N S I O N S  (BARS)
                                                                   BD       TP       K
13  33   1   2     .1       .3       .6       3.       15.       G/CC     PCT    IN/HR

   DEPTH                                                           1
    0             31.41    25.48    20.85    19.90    11.20     1.40    47.17     .16
                  43.97    35.67    29.19    27.86    15.68     1.44    45.66     .07
                  FRAGMENT 27.21              SIEVED 11.07ROCK PERCENT  9.97
                                                                   1
    5             33.98    27.45    24.45    22.54    16.66     1.36    48.68     .15
                  46.21    37.33    33.25    30.65    22.65     1.43    46.04     .33
                  FRAGMENT 27.77              SIEVED 15.76ROCK PERCENT  7.68
                                                                   1
   10             35.02    32.44    28.82    28.05    21.97     1.27    52.08     .20
                  44.47    41.19    36.60    35.62    27.90     1.61    39.25     0
                  FRAGMENT 35.92              SIEVED 23.33ROCK PERCENT 42.18
                                                                   3
   17             30.72    23.72    22.49    21.49    19.29     1.31    50.57
                  40.24    31.07    29.46    28.15    25.26
                  FRAGMENT                    SIEVED 18.59ROCK PERCENT 59.87


      1=FIST
      2=CORE
      3=LOOSE
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IVA SILT LOAM (17,05,C,a)

Location: Madison Co., Ill.; T5N, R7W, sec. 20, NW cor. thence S about 880' and E 1420' to fence corner thence 348' N and 186' W.
Vegetation and land use: Soybeans
Topography: Nearly level ridge
Drainage: Imperfect
Parent Material: Loess
Described and sampled by: Charles E. Downey and G. A. Schumaker

Horizon	Description
Ap	0 to 9 inches. Dark to very dark grayish brown (10YR 4/2-3/2) silt loam; moderate, fine, granular structure; friable; pH 7.5; abrupt, smooth boundary.
A21	9 to 14 inches. Grayish brown (10YR 5/2) silt loam with many, fine, distinct, vertical elongated areas resembling worm channels filled with dark to very dark grayish brown (10YR 4/2-3/2) material similar to horizon above; weak, fine, subangular blocky structure; pH 6.0; clear, smooth boundary.
A22	14 to 18 inches. Grayish brown (10YR 5/2) silt loam with many, fine, distinct, light grayish brown (10YR 6/2) and few, fine, distinct brown (10YR 5/3) mottles; weak, thick platy breaking to weak, fine, subangular blocky structure; friable; pH 6.0; clear, smooth boundary.
B1	18 to 21 inches. Brown to dark brown (10YR 4/3) light silty clay loam with common, fine, distinct light grayish brown (10YR 6/2) mottles; moderate, medium prismatic which breaks to moderate, fine, subangular blocky structure; many, thick, light grayish brown (10YR 6/2) silty coatings on peds; friable to firm when moist; many, soft, black iron concretions; pH 5.2; clear, smooth boundary.
B21	21 to 30 inches. Brown to dark brown (10YR 4/3) heavy silty clay loam with few, fine, distinct light grayish brown mottles; moderate, fine, subangular blocky to blocky structure with thin dark grayish brown (10YR 4/2) clay films on peds; firm; few large cleavage planes filled with light brownish gray (10YR 6/2) material; pH 5.2; gradual, smooth boundary.
B22	30 to 41 inches. Grayish brown (10YR 5/2) silty clay loam with many, fine, prominent brown to dark brown (7.5YR 4/4) mottles; moderate, medium, subangular blocky structure with peds coated with grayish brown (10YR 5/2) clay films; firm when moist; pH 5.2; diffuse, smooth boundary.
B3	41 to 55 inches. Grayish brown (10YR 5/2) light silty clay loam with common, fine, prominent, brown to dark brown (7.5YR 4/4) mottles; weak, coarse angular blocky structure; grayish brown (10YR 5/2) clay films in larger cracks; firm; pH 6.5; diffuse, smooth boundary.
C	55 to 65 inches plus. Light brownish gray (10YR 6/2) silt loam with common, fine, distinct brown to dark brown (7.5YR 4/4) mottles; massive; friable to firm; pH 7.0; few, medium, prominent black (10YR 2/1) iron stains or soft concretions.

EDWARDSVILLE, ILLINOIS

IVA SILT LOAM (17,05,C,a)

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      WEIGHT  PERCENT  AND  VOLUME  PERCENT  OF  WATER  RETAINED

IDENTIFICATION       T E N S I O N S  (BARS)
                                                                 BD       TP       K
17   5   2   1     .1       .3       .6       3.       15.      G/CC     PCT    IN/HR

    DEPTH                                                          1
     0            31.25    28.19    25.89    19.00     7.88     1.32    50.19     .36
                  41.25    37.21    34.17    25.08    10.40     1.36    48.68     .20
                  FRAGMENT 26.10              SIEVED   5.88ROCK PERCENT  1.67
                                                                   1
     9            33.76    29.29    23.56    17.43     6.57     1.36    48.68     .71
                  45.91    39.83    32.04    23.70     8.93     1.39    47.55    1.69
                  FRAGMENT 27.91              SIEVED   3.49ROCK PERCENT  3.94
                                                                   1
    14            29.06    25.88    20.38    18.69     9.11     1.46    44.91     .50
                  42.42    37.78    29.75    27.28    13.30     1.52    42.64     .34
                  FRAGMENT 24.49              SIEVED   7.07ROCK PERCENT
                                                                   1
    18            29.47    26.08    23.19    22.27    14.77     1.40    47.17    1.86
                  41.25    36.51    32.46    31.17    20.67     1.64    38.11     .50
                  FRAGMENT 24.88              SIEVED  19.26ROCK PERCENT 33.85
                                                                   1
    21            32.88    30.43    25.16    24.86    20.06     1.44    45.66     .33
                  47.34    43.81    36.23    35.79    28.88     1.69    36.23    2.38
                  FRAGMENT 29.12              SIEVED  16.08ROCK PERCENT
                                                                   1
    30            35.82    32.41    25.62    24.83    19.42     1.37    48.30      0
                  49.07    44.40    35.09    34.01    26.60     1.48    44.15
                  FRAGMENT 31.52              SIEVED  15.68ROCK PERCENT
                                                                   1
    41            35.36    31.63    27.97    24.67    19.09     1.41    46.79      0
                  49.85    44.59    39.43    34.78    26.91     1.57    40.75
                  FRAGMENT 29.12              SIEVED  15.25ROCK PERCENT  2.94

      1=FIST
      2=CORE
      3=LOOSE
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IVA SILT LOAM (17,05,C,b)

Location: Madison Co., Ill.: T5N, R7W, sec. 17, center of section thence W 742' and S 20'.
Vegetation and land use: Plowed field
Topography: Nearly level ridge
Drainage: Imperfect
Parent Material: Loess
Described and sampled by: Charles E. Downey and G. A. Schumaker

Horizon	Description
Ap	0 to 8 inches. Dark to very dark grayish brown (10YR 3/2-4/2) silt loam; weak, fine to medium, granular structure; friable; pH 8.0; abrupt, smooth boundary.
A21	8 to 12 inches. Grayish brown (10YR 5/2) silt loam with many fine, distinct, vertical elongated areas resembling worm channels filled with dark to very dark grayish brown material from the horizon above; weak, medium, platy to weak, fine, subangular blocky structure; friable; pH 8.0; clear, smooth boundary.
A22	12 to 15 inches. Light gray (10YR 6/1-7/1) silt loam; with many, fine, prominent dark yellowish brown (10YR 4/4) mottles; weak, fine, subangular blocky structure; friable; few dark to very dark grayish brown (10YR 3/2-4/2) fillings in root channels or worm holes; pH 7.5; clear, smooth boundary.
B1	15 to 18 inches. Dark yellowish brown (10YR 4/4) light silty clay loam with many, fine, prominent, mottles of light brownish gray (10YR 6/2); moderate, fine and medium, subangular blocky structure; friable to firm; pH 5.5; clear, smooth boundary.
B21	18 to 22 inches. Dark yellowish brown (10YR 4/4) silty clay loam with many, fine, prominent grayish brown (10YR 5/2) mottles; moderate, fine and medium, angular blocky structure; thin dark grayish brown (10YR 4/2) clay films on peds; thick, grayish brown (10YR 5/2) clay flows on larger cracks and extending into the horizon below; firm; pH 5.7; gradual, smooth boundary.
B22	22 to 33 inches. Grayish brown (10YR 5/2) silty clay loam with many, fine to medium prominent yellowish brown (10YR 4/4) mottles; weak, medium to coarse, angular blocky structure with thin grayish brown (10YR 5/2) clay films on peds; few, thick, grayish brown clay films or flows in large cracks extending down from the horizon above; firm; pH 6.5; gradual, smooth boundary.
B3	33 to 43 inches. Grayish brown (10YR 5/2) light silty clay loam with many, medium, prominent, dark yellowish brown (10YR 4/4) and few fine, prominent strong brown (7.5YR 5/6-5/8) mottles; weak, coarse, blocky structure; firm to friable; few (10YR 5/2) clay flows; pH 8.0; gradual, smooth boundary.
C	43 to 60 inches plus. Grayish brown silt loam with many, medium to coarse, brown to strong brown (7.5YR 5/4-5/8) and few, fine, prominent, black (10YR 2/1) mottles; massive; friable; pH 8.0.

IVA SILT LOAM (17,05,C,b)

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      WEIGHT  PERCENT  AND  VOLUME  PERCENT  OF  WATER  RETAINED

IDENTIFICATION        T E N S I O N S  (BARS)
                                                                    BD        TP        K
17   5   2   2      .1        .3        .6        3.        15.       G/CC      PCT      IN/HR

    DEPTH                                                              2
     0              39.87     28.02     21.21     14.60     6.64      1.38      47.92
                    55.02     38.66     29.26     20.14     9.16
                    FRAGMENT                       SIEVED   6.59ROCK  PERCENT   3.34
                                                                       1
     8                        27.17     22.01     17.50     7.77      1.42      46.42      2.87
                              38.58     31.25     24.85     11.03     1.43      46.04      1.99
                    FRAGMENT  25.46                SIEVED   7.43ROCK  PERCENT
                                                                       1
    12              30.98     26.06     21.19     15.13     7.77      1.43      46.04      .49
                    44.30     37.26     30.30     21.63     11.11     1.48      44.15      .47
                    FRAGMENT  24.40                SIEVED   8.58ROCK  PERCENT   8.71
                                                                       1
    15              28.23     25.73     22.16     21.11     20.56     1.46      44.91      .49
                    41.21     37.56     32.35     30.82     30.01     1.63      38.49      .27
                    FRAGMENT  23.11                SIEVED 16.36ROCK  PERCENT
                                                          (19.68)      1
    18              37.49     30.68     26.54     25.00     15.57     1.41      46.79      .24
                    52.86     43.25     37.42     35.25     21.95     1.73      34.72      .05
                    FRAGMENT  28.07                SIEVED 12.07ROCK  PERCENT
                                                                       1
    22              39.63     34.13     30.46     24.85     20.52     1.35      49.06      .02
                    53.50     46.07     41.12     33.54     27.70     1.55      41.51      .02
                    FRAGMENT  33.50                SIEVED 16.76ROCK  PERCENT   3.42
                                                                       1
    33              40.42     32.85     29.48     26.81     18.93     1.30      50.94      0
                    52.54     42.70     38.32     34.85     24.60     1.55      41.51
                    FRAGMENT  31.18                SIEVED 16.10ROCK  PERCENT
                                                                       1
    43              35.26     30.96     27.42     23.76     15.54     1.28      51.70      .32
                    45.13     39.62     35.09     30.41     19.89     1.53      42.26      .08
                    FRAGMENT  30.36                SIEVED 13.59ROCK  PERCENT


      1=FIST
      2=CORE
      3=LOOSE
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MUREN SOILS (17,06,P,a and b)

Location: Madison Co., Ill.: T5N, R7W; Pit a, sec. 20, NW cor. 480' S and 920' E; Pit b, sec. 17, center of section thence W 1800' and S 1040'.
Vegetation and land use: Bluegrass pasture
Topography: 14 percent slope, severely eroded
Drainage: Moderately well
Parent Material: Loess
Described and sampled by: Charles E. Downey and G. A. Schumaker

Horizon	Description
(Pit a)	
Ap	0 to 5 inches. Brown to dark brown (10YR 4/3) light silty clay loam; weak, fine, subangular blocky structure; firm; pH 5.5; abrupt, smooth boundary.
B2	5 to 14 inches. Dark yellowish brown (10YR 4/4) silty clay loam; with few, fine, prominent, pale brown (10YR 6/3) and few, medium, prominent, strong brown (7.5YR 5/8) mottles; moderate fine and medium subangular blocky structure; thin coatings on peds slightly darker than matrix; firm; pH 5.0; gradual, smooth boundary.
B3	14 to 19 inches. Light gray to gray (10YR 6/1) light silty clay loam with common, fine, prominent, strong brown (7.5YR 5/8) mottles; weak, coarse, subangular blocky structure; firm to friable; pH 5.5; gradual, smooth boundary.
C	19 to 33 inches plus. Light gray to gray (10YR 6/1) silt loam; with common, fine to coarse, strong brown (7.5YR 5/8) mottles; massive; friable; pH 7.0.
(Pit b)	
Ap	0 to 5 inches. Brown to dark brown (10YR 4/3) light silty clay loam with many, fine, distinct, pale brown (10YR 6/3) mottles; weak, fine and medium, granular structure; friable to firm; pH 7.5; abrupt, smooth boundary.
B3	5 to 10 inches. Brown to dark brown (7.5YR 4/4) light silty clay loam with few, fine, distinct, grayish brown (10YR 5/2) mottles; weak, fine to medium, subangular blocky structure with thin coatings on clay films slightly darker than matrix; friable to firm; pH 6.0; gradual, smooth boundary.
C	10 to 28 inches plus. Grayish brown (10YR 5/2) to light grayish brown silt loam with many, fine, prominent, brown to dark brown (10YR 4/4) mottles and few, fine, prominent, black (10YR 2/1) stains or iron concretions; massive to weak, thick, platy, structure; friable to firm; many fine pores; pH 6.0 at 16 in. and 7.0 at 28 in.

MUREN SOILS (17,06,P,a and b)

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       WEIGHT  PERCENT  AND  VOLUME  PERCENT  OF  WATER  RETAINED

IDENTIFICATION         T E N S I O N S  (BARS)
                                                                  BD       TP     K
17   6   1   1     .1       .3       .6       3.        15.      G/CC     PCT    IN/HR

     DEPTH                                                             1
       0          30.99    28.35    24.05    19.83     14.46     1.41      46.79    .20
                  43.69    39.97    33.91    27.96     20.38     1.60      39.62   1.06
                  FRAGMENT 26.02               SIEVED 11.07ROCK PERCENT
                                                                     1
       5          36.41    31.46    30.21    23.44     16.66     1.27      52.08    .62
                  46.24    39.95    38.36    29.76     21.15     1.34      49.43   1.56
                  FRAGMENT 29.03               SIEVED 12.22ROCK PERCENT
                                                      (14.94)        1
      14          33.78    28.82    27.87    20.29     15.11     1.40      47.17   1.13
                  47.29    40.34    39.01    28.40     21.15     1.59      40.00    .21
                  FRAGMENT 28.75               SIEVED 15.96ROCK PERCENT    .87
                                                                     1
      19          35.66    31.13    28.02    20.64     15.82     1.40      47.17    .47
                  49.92    43.58    39.22    28.89     22.14     1.57      40.75    .29
                  FRAGMENT 28.47               SIEVED 14.56ROCK PERCENT    .77


IDENTIFICATION         T E N S I O N S  (BARS)
                                                                  BD       TP     K
17   6   1   2     .1       .3       .6       3.        15.      G/CC     PCT    IN/HR

     DEPTH                                                             1
       0          36.18    30.28    27.10    20.39     15.58     1.36      48.68   5.59
                  49.20    41.18    36.85    27.73     21.18     1.60      39.62    .39
                  FRAGMENT 29.15               SIEVED 11.93ROCK PERCENT
                                                                     1
       5          41.83    30.20    27.45    22.58     15.41     1.31      50.57    .33
                  54.79    39.56    35.95    29.57     20.18     1.45      45.28    .19
                  FRAGMENT 28.92               SIEVED 11.87ROCK PERCENT
                                                                     1
      10          35.57    26.49    21.64    20.33     11.86     1.41      46.79    .58
                  50.15    37.35    30.51    28.66     16.72     1.57      40.75    .67
                  FRAGMENT 23.74               SIEVED  9.23ROCK PERCENT

       1=FIST
       2=CORE
       3=LOOSE
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MUREN SOILS (17,06,C,a)

Location: Madison Co., Ill.: T5N, R7W, sec. 20, NW cor. of sec. thence 500' due E.
Vegetation and land use: Soybeans
Topography: 14 percent slope, severely eroded
Drainage: Moderately well drained
Parent Material: Loess
Described and sampled by: Charles E. Downey and G. A. Schumaker

Horizon	Description
Ap	0 to 5 inches. Grayish brown to dark grayish brown (10YR 4/2-3/2) heavy silt loam to silty clay loam; moderate, fine to medium, granular structure; pH 6.5; abrupt, smooth boundary.
B21	5 to 11 inches. Dark yellowish brown (10YR 4/4) silty clay loam with many vertical tubular areas resembling worm or root cavities filled with grayish brown to dark grayish brown material; moderate, fine and medium, subangular blocky structure with thin, dark brown (10YR 3/3) coatings on clay films on peds; firm; pH 5.5; gradual, smooth boundary.
B22	11 to 20 inches. Dark yellowish brown (10YR 4/4) silty clay loam with few, fine, distinct, yellowish brown (10YR 5/8) and light grayish brown (10YR 6/2) mottles; moderate, medium, subangular blocky structure with peds lightly coated with dark brown (10YR 3/3) organic coatings on thin clay films; pH 5.5; gradual, smooth boundary.
B3	20 to 29 inches. Light grayish brown (10YR 6/2) light silty clay loam with many, medium to coarse, prominent, brown to dark brown (7.5YR 4/4) mottles and few, fine, distinct black (10YR 2/1) iron or manganese stains; weak, coarse, subangular blocky structure with pale brown (10YR 6/3) coatings or thin clay films on peds; firm to friable; pH 6.5; gradual, smooth boundary.
C	29 to 36 inches plus. Light grayish brown (10YR 6/2) silt loam with many, medium to coarse, prominent, brown to dark brown mottles and few black (10YR 2/1) iron or manganese stains; massive; friable; pH 7.0.

MUREN SOILS (17,06,C,a)

```
      WEIGHT  PERCENT  AND  VOLUME  PERCENT  OF  WATER  RETAINED

IDENTIFICATION        T E N S I O N S  (BARS)
                                                             BD        TP        K
17   6   2   1     .1        .3        .6        3.        15.        G/CC      PCT      IN/HR

    DEPTH                                                              1
     0             36.74     32.66     26.39     23.16     14.24     1.33      49.81      .76
                   48.86     43.43     35.09     30.80     18.93     1.45      45.28     1.22
                   FRAGMENT 31.70                SIEVED 10.76ROCK PERCENT
                                                                       1
     5             34.25     32.35     29.38     23.39     14.77     1.42      46.42      .26
                   48.63     45.93     41.71     33.21     20.97     1.60      39.62      .50
                   FRAGMENT 31.55                SIEVED 11.09ROCK PERCENT 47.16
                                                                       1
    11             32.47     29.18     26.63     22.43     15.76     1.42      46.42     1.02
                   46.10     41.43     37.81     31.85     22.37     1.63      38.49     1.25
                   FRAGMENT 28.48                SIEVED 12.18ROCK PERCENT
                                                                       1
    20             32.62     29.67     27.05     21.08     15.49     1.43      46.04      .68
                   46.64     42.42     38.68     30.14     22.15     1.70      35.85      .69
                   FRAGMENT 27.61                SIEVED 11.83ROCK PERCENT 28.57
                                                                       1
    29             33.12     29.99     25.05     22.15     15.00     1.42      46.42      .10
                   47.03     42.58     35.57     31.45     21.30     1.56      41.13       0
                   FRAGMENT 27.15                SIEVED 11.07ROCK PERCENT

     1=FIST
     2=CORE
     3=LOOSE
```

MUREN SOILS (17,06,C,b)

Location: Madison Co., Ill.: T5N, R7W, sec. 20, NW cor. thence 1950' E and 280' S.
Vegetation and land use: Cornfield
Topography: 12 percent slope, severely eroded
Drainage: Moderately well drained
Parent Material: Loess
Described and sampled by: Charles E. Downey and G. A. Schumaker

Horizon	Description
Ap	0 to 8 inches. Dark grayish brown (10YR 4/2) light silty clay loam with 20 percent dark yellowish brown (10YR 4/4) in a fine, distinct pattern; weak, fine and medium, granular structure; friable to firm; pH 6.0; abrupt, smooth boundary.
B2	8 to 16 inches. Dark yellowish brown (10YR 4/4) silty clay loam with many, fine, prominent, light brownish gray (10YR 6/2) and few, fine, distinct, yellowish brown (10YR 5/8) mottles; moderate, medium, subangular blocky structure with grayish brown (10YR 5/2) clay films or coatings on most peds; pH 5.5; gradual, smooth boundary.
B3	16 to 26 inches. Dark yellowish brown (10YR 4/4) light silty clay loam to silt loam with many, fine, distinct, light brownish gray (10YR 6/2) mottles; weak, coarse, subangular blocky structure with grayish brown (10YR 4/2) and dark grayish brown (10YR 4/2), thin clay films or coatings on peds; firm to friable; pH 5.8; gradual, smooth boundary.
C	26 to 40 inches plus. Dark yellowish brown (10YR 4/4) silt loam with many, fine, distinct, light brownish gray (10YR 6/2) and few, fine, distinct, yellowish brown (10YR 5/6) mottlings; massive; some black soft iron or manganese concretions; pH 7.0.

MUREN SOILS (17,06,C,b)

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      WEIGHT  PERCENT  AND  VOLUME  PERCENT  OF  WATER  RETAINED

IDENTIFICATION        T E N S I O N S  (BARS)
                                                              BD        TP       K
17   6   2   2     .1       .3       .6       3.       15.     G/CC      PCT    IN/HR

     DEPTH                                                     1
      0            32.35    30.43    28.66    20.46    16.73    1.30     50.94     0
                   42.05    39.55    37.25    26.59    21.74    1.54     41.89    .13
                   FRAGMENT 32.66             SIEVED 12.76ROCK PERCENT
                                                               1
      8            34.88    31.42    30.05    21.99    15.96    1.42     46.42   1.54
                   49.52    44.61    42.67    31.22    22.66    1.65     37.74   1.47
                   FRAGMENT 31.44             SIEVED 17.19ROCK PERCENT 27.22
                                                               1
     16            34.69    29.76    26.80    21.24    14.98    1.47     44.53   3.56
                   50.99    43.74    39.39    31.22    22.02    1.62     38.87    .06
                   FRAGMENT 28.07             SIEVED 11.41ROCK PERCENT
                                                               1
     26            31.55    30.17    25.78    22.32    12.54    1.38     47.92    .30
                   43.53    41.63    35.57    30.80    17.30    1.52     42.64    .36
                   FRAGMENT 29.99             SIEVED  9.89ROCK PERCENT 20.24

      1=FIST
      2=CORE
      3=LOOSE
```

CHALMERS SILTY CLAY LOAM (19,03,C,a)

Location: Purdue Throckmorton Farm, W side of 43, 200' W of NE cor. farmstead fence line.
Vegetation and land use: Cultivated
Topography: Slope: depressional; erosion: none
Drainage: Very poorly drained; permeability slow to very slow.
Parent Material: Calcareous loam till, Late Wisconsin Age
Described and sampled by: Ralph Sturm and G. P. Lawless

Horizon	Description
Ap	0 to 7 inches. Black (10YR 2/1) silty clay loam; weak, medium and coarse granular structure (cloddy when dry); friable; common fine roots; neutral; abrupt smooth boundary.
A12	7 to 15 inches. Black (10YR 2/1) silty clay loam; weak to moderate medium angular blocky structure; friable; neutral; clear wavy boundary.
A13	15 to 21 inches. Black (10YR 2/1) silty clay loam with common pale brown (10YR 6/3) mottles; strong medium subangular blocky structure; firm; neutral; clear wavy boundary.
B22tg	21 to 36 inches. Light olive brown (2.5Y 5/4) silty clay loam with few light yellowish brown (2.5Y 6/4) mottles; strong coarse prismatic structure; gray (N 5/0) coatings on ped faces, common dark gray (N 4/0) clay flows 2 to 4 mm. thick throughout; firm; neutral; clear wavy boundary.
B23tg	36 to 44 inches. Light olive brown (2.5Y 5/4) silty clay loam with few light yellowish brown (2.5Y 6/4) mottles; strong coarse prismatic structure; gray (N 5/0) coats on ped faces; firm; neutral; clear wavy boundary.
IIB3tg	44 to 60 inches. Light olive brown (2.5Y 5/4) clay loam with occasional light yellowish brown (2.5Y 6/4) mottles; weak, coarse prismatic structure; gray (N 5/0) coats on ped faces; firm; slightly alkaline.
IIC	60 inches plus. Mottled yellowish brown (10YR 5/6) and gray (10YR 6/1) loam; massive; friable; calcareous.

Remarks: Pit very wet (raining) and colors were difficult to identify. Ground water about 36 inches.

CHALMERS SILTY CLAY LOAM (19,03,C,a)

WEIGHT PERCENT AND VOLUME PERCENT OF WATER RETAINED

IDENTIFICATION	TENSIONS (BARS)					BD	TP	K
19 3 2 1	.1	.3	.6	3.	15.	G/CC	PCT	IN/HR
DEPTH						1		
0	32.16	30.18	29.99	29.01	20.72	1.38	47.92	.20
	44.38	41.64	41.38	40.03	28.59	1.49	43.77	.53
	FRAGMENT	34.32		SIEVED	17.52ROCK	PERCENT		
						1		
7	37.34	35.16	32.78	30.37	20.48	1.33	49.81	.32
	49.66	46.76	43.59	40.39	27.23	1.55	41.51	.63
	FRAGMENT	33.21		SIEVED	18.42ROCK	PERCENT		
						1		
15	33.99	31.80	27.31	27.09	19.90	1.34	49.43	.86
	45.54	42.61	36.59	36.30	26.66	1.67	36.98	1.18
	FRAGMENT	29.20		SIEVED	16.70ROCK	PERCENT	5.94	
						1		
21	32.31	31.14	27.58	26.45	19.45	1.43	46.04	.70
	46.20	44.53	39.43	37.82	27.81	1.75	33.96	.90
	FRAGMENT	29.01		SIEVED	16.54ROCK	PERCENT		
						1		
36	27.96	27.02	24.41	23.16	16.14	1.51	43.02	0
	42.21	40.80	36.85	34.97	24.37	1.71	35.47	.02
	FRAGMENT	26.01		SIEVED	12.21ROCK	PERCENT		
						1		
44	28.36	27.09	24.53	23.80	14.28	1.45	45.28	.12
	41.12	39.28	35.56	34.51	20.70	1.68	36.60	.02
	FRAGMENT	25.62		SIEVED	10.50ROCK	PERCENT	2.78	

1=FIST
2=CORE
3=LOOSE

CHALMERS SILTY CLAY LOAM (19,03,C,b)

Location: Purdue Throckmorton Farm, W side of Hwy. 43, SE cor. of farmstead, 20' from highway.
Vegetation and land use: Cultivated
Topography: Slope, depressional; erosion, none.
Drainage: Very poorly drained; permeability slow to very slow.
Parent Material: Calcareous loam till, Late Wisconsin Age.
Described and sampled by: Ralph Sturm and G. P. Lawless

Horizon	Description
Ap	0 to 10 inches. Black (10YR 2/1) silty clay loam; weak fine and medium granular structure; friable; common fine roots; neutral; abrupt smooth boundary.
A12	10 to 16 inches. Very dark grayish brown (10YR 3/2) silty clay loam with few grayish brown (10YR 5/2) mottles; moderate fine subangular blocky structure; common black (10YR 2/1) clay films 2 to 4 mm. thick; firm; few fine roots; neutral; clear wavy boundary.
B21tg	16 to 27 inches. Grayish brown (10YR 5/2) silty clay loam with common yellowish brown (10YR 5/8) mottles; strong; medium prismatic structure; firm; slightly acid; clear wavy boundary.
B22tg	27 to 35 inches. Light brownish gray (10YR 6/2) and yellowish brown (10YR 5/8) silty clay loam; strong medium and coarse prismatic structure; firm; common black (10YR 2/1) nodules; slightly acid; clear wavy boundary.
IIB23tg	35 to 45 inches. Light brownish gray (10YR 6/2) and yellowish brown (10YR 5/8) clay loam; strong medium and coarse prismatic structure; firm; many 1-2 mm. voids; neutral; clear wavy boundary.
IIB3g	45 to 62 inches. Gray (10YR 5/1) and yellowish brown (10YR 5/8) sandy clay loam with dark gray (10YR 4/1) mottles; weak medium and coarse prismatic structure; firm; 3-5% coarse sands and fine gravels; neutral; clear wavy boundary.
IIC	62 inches plus. Mottled yellowish brown (10YR 5/6) and gray (10YR 6/1) loam; massive; friable; calcareous.

Remarks: Pit very wet; surface water; raining. Colors and structure were difficult to identify. Ground water about 36 inches.

This profile approaches somewhat poorly drained Raub soils.

CHALMERS SILTY CLAY LOAM (19,03,C,b)

```
        WEIGHT  PERCENT  AND  VOLUME  PERCENT  OF  WATER  RETAINED

IDENTIFICATION         T E N S I O N S  (BARS)
                                                                   BD        TP        K
19   3    2    2      .1        .3        .6        3.       15.        G/CC      PCT     IN/HR

      DEPTH                                                             1
        0            31.81     28.61     26.43     25.49     12.72     1.42      46.42      .07
                     45.17     40.62     37.53     36.19     18.06     1.52      42.64      .28
                     FRAGMENT  27.31                 SIEVED   9.91ROCK PERCENT
                                                                        1
       10            30.12     26.06     25.75     24.82     13.66     1.42      46.42      .11
                     42.77     37.00     36.56     35.24     19.39     1.51      43.02      .29
                     FRAGMENT  25.83                 SIEVED   9.87ROCK PERCENT  5.52
                                                                        1
       16            32.52     31.65     26.82     25.19     20.33     1.36      48.68      .11
                     44.22     43.04     36.47     34.25     27.64     1.56      41.13     2.90
                     FRAGMENT  29.57                 SIEVED 13.49ROCK PERCENT 16.18
                                                           (17.47)      1
       27            32.60     30.80     27.77     25.71     19.04     1.37      48.30      .06
                     44.66     42.19     38.04     35.22     26.08     1.58      40.38      .07
                     FRAGMENT  30.12                 SIEVED 16.14ROCK PERCENT   .32
                                                                        1
       35            31.44     30.34     26.64     25.78     17.64     1.46      44.91      .12
                     45.90     44.29     38.89     37.63     25.75     1.61      39.25      .26
                     FRAGMENT  28.18                 SIEVED 12.86ROCK PERCENT
                                                           (15.94)      1
       45            20.19     19.45     18.28     14.33     10.65     1.58      40.38      .30
                     31.90     30.73     28.88     22.64     16.82     1.65      37.74      .16
                     FRAGMENT  17.73                 SIEVED   9.57ROCK PERCENT 11.10


        1=FIST
        2=CORE
        3=LOOSE
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FINCASTLE SILT LOAM (19,04,C,a)

Location: Purdue University Old Dairy Farm, N of cinder road, 315' N, 130' E of NW cor. of east woods.
Vegetation and land use: Cultivated
Topography: Slope, 1 percent; erosion, none to slight.
Drainage: Somewhat poorly drained; permeability slow.
Parent Material: Calcareous loam till, Late Wisconsin Age.
Described and sampled by: Ralph Sturm and G. P.Lawless

Horizon	Description
Ap	0 to 10 inches. Dark grayish brown (10YR 4/2) silt loam with few fine faint light gray (10YR 6/1) mottles; weak fine granular structure; friable; few fine roots; slightly acid; abrupt smooth boundary.
A2	10 to 14 inches. Yellowish brown (10YR 5/4) silt loam with many medium distinct light gray (10YR 6/1) mottles and few medium prominent very dark gray (10YR 3/1) mottles; crushes to pale brown (10YR 6/3); moderate medium and coarse granular structure; friable; few fine roots; medium acid; clear wavy boundary.
B21t	14 to 24 inches. Yellowish brown (10YR 5/4) silty clay loam; with many medium distinct light brownish gray (10YR 6/2) mottles; moderate medium subangular blocky structure; firm; few fine roots; strongly acid; clear wavy boundary.
B22t	24 to 30 inches. Yellowish brown (10YR 5/6) silty clay loam; strong coarse subangular blocky structure; firm to very firm; common very dark brown (10YR 3/2) nodules; occasional light brownish gray (10YR 6/2) clay films; medium acid; clear wavy boundary.
IIB22t	30 to 38 inches. Yellowish brown (10YR 5/6) and light gray (10YR 6/1) clay loam; moderate coarse subangular blocky structure; firm; many medium prominent very dark gray (10YR 3/1) nodules; occasional coarse gravel; neutral; clear wavy boundary.
IIC	38 to 56 inches. Yellowish brown (10YR 5/6) loam; massive; occasional coarse gravel; friable; calcareous.

Remarks: Although the depth to calcareous loam till is less than minimum (42"+) for this soil, the silt mantle is middle of range and the least permeable layer is well above the C. Also difficult to locate two ideal types in this area. Colors are for moist conditions above 38 in., moist to wet below 38 in.

FINCASTLE SILT LOAM (19,04,C,a)

WEIGHT PERCENT AND VOLUME PERCENT OF WATER RETAINED

IDENTIFICATION	TENSIONS (BARS)							
19 4 2 1	.1	.3	.6	3.	15.	BD G/CC	TP PCT	K IN/HR
DEPTH						1		
0	26.97	24.09	22.64	17.46	7.58	1.36	48.68	0
	36.67	32.76	30.79	23.74	10.30	1.40	47.17	.14
	FRAGMENT	26.01		SIEVED	5.83ROCK	PERCENT		
						1		
10	25.83	23.88	22.39	20.87	13.31	1.44	45.66	.47
	37.19	34.38	32.24	30.05	19.16	1.55	41.51	.57
	FRAGMENT	25.32		SIEVED	11.26ROCK	PERCENT		
						1		
14	30.38	27.55	26.73	25.39	18.97	1.41	46.79	.21
	42.83	38.84	37.68	35.79	26.74	1.59	40.00	.69
	FRAGMENT	26.70		SIEVED	14.16ROCK	PERCENT		
					(16.81)	1		
24	29.61	27.45	25.74	23.50	12.96	1.42	46.42	.17
	42.04	38.97	36.55	33.37	18.40	1.61	39.25	.14
	FRAGMENT	26.85		SIEVED	15.61ROCK	PERCENT	22.76	
						1		
30	28.43	27.08	26.54	23.62	16.77	1.45	45.28	.20
	41.22	39.26	38.48	34.24	24.31	1.66	37.36	.09
	FRAGMENT	25.30		SIEVED	15.55ROCK	PERCENT	.79	
						1		
38	21.40	19.37	19.14	16.08	11.81	1.67	36.98	0
	35.73	32.34	31.96	26.85	19.72	1.77	33.21	.05
	FRAGMENT	18.40		SIEVED	13.02ROCK	PERCENT	35.92	

1=FIST
2=CORE
3=LOOSE

LAFAYETTE, INDIANA

FINCASTLE SILT LOAM (19,04,C,b)

Location: Purdue University Old Dairy Farm, 300' N of cinder road, 40' W of 2nd fence line from McCormack Lane.
Vegetation and land use: Cultivated
Topography: Slope, 1 percent; erosion, none to slight.
Drainage: Somewhat poorly drained; permeability slow.
Parent Material: Calcareous loam till, Late Wisconsin Age.
Described and sampled by: Ralph Sturm and G. P. Lawless

Horizon	Description
Ap	0 to 8 inches. Dark grayish brown (10YR 4/2) silt loam with few fine faint dark gray (10YR 4/1) mottles; weak fine granular structure; friable; common fine roots; medium acid; abrupt smooth boundary.
A2	8 to 12 inches. Pale brown (10YR 6/3) silt loam with many medium distinct yellowish brown (10YR 5/8) and grayish brown (10YR 5/2) mottles; crushes to yellowish brown (10YR 5/4); moderate fine and medium granular structure; friable; common fine roots; slightly acid; abrupt wavy boundary.
B21t	12 to 24 inches. Grayish brown (10YR 5/2) silty clay loam with many medium distinct yellowish brown (10YR 5/8) mottles; moderate medium subangular blocky structure; firm; few fine roots; strongly acid; clear wavy boundary.
IIB22t	24 to 39 inches. Yellowish brown (10YR 5/8) clay loam with many medium distinct pale brown (10YR 6/3) and dark yellowish brown (10YR 4/4) mottles; moderate medium and coarse subangular blocky structure; firm; strongly acid; clear wavy boundary.
IIB23t	39 to 52 inches. Yellowish brown (10YR 5/8) sandy clay loam with many medium distinct pale brown (10YR 6/3) and dark yellowish brown (10YR 4/4) mottles; weak coarse subangular blocky structure; friable; neutral; clear wavy boundary.
IIC	52 inches plus. Yellowish brown (10YR 5/6) loam; massive; occasional coarse gravel; friable; calcareous.

Remarks: Colors are for moist conditions in first and second horizons; moist to wet in third, fourth and fifth horizons. Soil seems wetter than normal and difficulty was encountered distinguishing structure.

FINCASTLE SILT LOAM (19,04,C,b)

```
     WEIGHT  PERCENT  AND  VOLUME  PERCENT  OF  WATER  RETAINED

IDENTIFICATION        T E N S I O N S  (BARS)
                                                                   BD      TP       K
19   4   2   2     .1        .3        .6        3.        15.     G/CC    PCT    IN/HR

    DEPTH                                                            1
     0            27.74     26.18     25.72     21.19      8.26     1.46    44.91      0
                  40.50     38.22     37.55     30.93     12.05     1.50    43.40    .13
                  FRAGMENT  26.23               SIEVED   6.77ROCK PERCENT
                                                                     1
     8            27.85     27.07     26.36     24.33     16.41     1.41    46.79    .18
                  39.26     38.16     37.16     34.30     23.13     1.47    44.53    .32
                  FRAGMENT  25.35               SIEVED  12.81ROCK PERCENT
                                                                     1
    12            37.19     36.23     35.71     32.35     24.18     1.33    49.81    .14
                  49.46     48.18     47.49     43.02     32.15     1.68    36.60    .20
                  FRAGMENT  33.17               SIEVED  21.14ROCK PERCENT  3.64
                                                                     1
    24            30.43     27.69     26.79     22.66     17.51     1.40    47.17    .17
                  42.60     38.76     37.50     31.72     24.51     1.67    36.98    .22
                  FRAGMENT  28.79               SIEVED  14.90ROCK PERCENT 20.23
                                                                     1
    39            20.58     19.43     17.58     15.55     11.07     1.43    46.04    .17
                  29.42     27.78     25.13     22.23     15.83     1.50    43.40    .26
                  FRAGMENT  18.69               SIEVED   7.87ROCK PERCENT 28.57
                                                       (10.13)       1
    52            17.12     16.42     15.17     14.82     10.80     1.59    40.00    .42
                  27.22     26.10     24.12     23.56     17.17     1.68    36.60    .09
                  FRAGMENT  16.59               SIEVED   9.21ROCK PERCENT 31.52

     1=FIST
     2=CORE
     3=LOOSE
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LAFAYETTE, INDIANA

FINCASTLE SILT LOAM (19,04,F,a)

Location: Purdue University Old Dairy Farm, S of E-W cinder road, 280' S, 105' W of NE cor. of east woods.
Vegetation and land use: Grass
Topography: Slope, 1 percent; erosion, none to slight.
Drainage: Somewhat poorly drained; permeability slow.
Parent Material: Calcareous loam till, Late Wisconsin Age.
Described and sampled by: Ralph Sturm and G. P. Lawless

Horizon	Description
A1	0 to 4 inches. Very dark brown (10YR 2/2) silt loam; weak fine granular structure; friable; many fine roots; mildly alkaline; abrupt smooth boundary.
A2	4 to 11 inches. Brown (10YR 5/3) silt loam with few yellowish brown (10YR 5/4) mottles; upper half strong coarse platy structure; lower half moderate medium granular structure; friable; common fine roots; medium acid; clear wavy boundary.
B21t	11 to 19 inches. Yellowish brown (10YR 5/8) silty clay loam with many fine distinct light yellowish brown (10YR 6/4) and grayish brown (10YR 5/2) mottles; moderate to strong fine and medium subangular blocky structure; firm; few roots; strongly acid; clear wavy boundary.
B22t	19 to 34 inches. Yellowish brown (10YR 5/8) silty clay loam with many medium distinct brown (10YR 5/3) mottles; moderate coarse prismatic structure breaking to strong medium and coarse subangular blocky structure; pale brown (10YR 6/3) coats on ped faces; firm; few fine roots; medium acid; clear wavy boundary.
IIB23t	34 to 49 inches. Yellowish brown (10YR 5/6) clay loam with many medium distinct brown (10YR 5/3) mottles; weak coarse prismatic structure breaking to moderate medium and coarse prismatic structure; firm; common very dark brown (10YR 2/2) concretions; neutral; clear wavy boundary.
IIC	49 inches plus. Yellowish brown (10YR 5/6) loam; massive; occasional coarse gravel; friable; calcareous.

Remarks: Been dumping excess manure here for many years, more than normal implement traffic. Colors for moist conditions to 34 in., moist to wet below 34 in.

The A2 horizon was not subdivided because it would have been difficult to get good undisturbed samples.

LAFAYETTE, INDIANA

FINCASTLE SILT LOAM (19,04,F,a)

```
      WEIGHT  PERCENT  AND  VOLUME  PERCENT  OF  WATER  RETAINED

IDENTIFICATION        T E N S I O N S  (BARS)
                                                                      BD        TP         K
19    4    3    1     .1        .3        .6        3.       15.     G/CC      PCT     IN/HR

      DEPTH                                                             1
       0            55.55     48.80     41.61     35.64     20.87     1.08     59.25      .89
                    59.99     52.70     44.93     38.49     22.53     1.07     59.62      .27
                    FRAGMENT  44.67                  SIEVED 14.57ROCK PERCENT
                                                           (24.57)     1
       4            26.98     24.91     23.84     19.67     13.20     1.31     50.57      .24
                    35.34     32.63     31.23     25.76     17.29     1.33     49.81      .46
                    FRAGMENT  22.68                  SIEVED  6.30ROCK PERCENT
                                                           (13.02)     1
      11            32.81     27.43     24.27     22.52     16.84     1.46     44.91      .15
                    47.90     40.04     35.43     32.87     24.58     1.54     41.89      .30
                    FRAGMENT  25.53                  SIEVED 12.32ROCK PERCENT
                                                           (17.26)     1
      19            32.45     29.64     26.60     25.39     13.77     1.39     47.55      .34
                    45.10     41.19     36.97     35.29     19.14     1.53     42.26      .42
                    FRAGMENT  28.34                  SIEVED 16.25ROCK PERCENT  9.66
                                                                       1
      34            30.41     24.80     23.50     20.62     18.90     1.47     44.53      .24
                    44.70     36.45     34.54     30.31     27.78     1.57     40.75      .12
                    FRAGMENT  24.58                  SIEVED 17.78ROCK PERCENT  8.43
                                                                       1
      49            19.55     16.34     15.75     14.38      9.35     1.55     41.51      .06
                    30.30     25.32     24.41     22.28     14.49     1.58     40.38      .02
                    FRAGMENT  16.38                  SIEVED  7.91ROCK PERCENT 17.56

      1=FIST
      2=CORE
      3=LOOSE
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FINCASTLE SILT LOAM (19,04,F,b)

Location: Purdue University Old Dairy Farm, S of E-W road, 290' S, 130' W of NE cor. of east woods.
Vegetation and land use: Grass
Topography: Slope, 2 percent; erosion, none to slight.
Drainage: Somewhat poorly drained; permeability slow.
Parent Material: Calcareous loam till, Late Wisconsin Age.
Described and sampled by: Ralph Sturm and G. P. Lawless

Horizon	Description
A1	0 to 4 inches. Very dark brown (10YR 2/2) silt loam; weak fine granular structure; friable; many fine roots; neutral; abrupt smooth boundary.
A12	4 to 10 inches. Brown (10YR 5/3) silt loam with few yellowish brown (10YR 5/4) mottles; moderate medium granular structure; friable; common fine roots; slightly acid; clear wavy boundary.
B1t	10 to 15 inches. Yellowish brown (10YR 5/8) light silty clay loam with many medium distinct light yellowish brown (10YR 6/4) and grayish brown (10YR 5/2) mottles; moderate fine and medium subangular blocky structure; friable to firm; few fine roots; strongly acid; clear wavy boundary.
B21t	15 to 25 inches. Yellowish brown (10YR 5/8) silty clay loam with many medium distinct light yellowish brown (10YR 6/4) and brown (10YR 5/3) mottles; strong medium subangular blocky structure; firm; few fine roots; strongly acid; clear wavy boundary.
IIB22t	25 to 42 inches. Yellowish brown (10YR 5/6) clay loam with many brown (10YR 5/3) mottles; moderate coarse prismatic structure breaking to strong medium and coarse subangular blocky structure; pale brown (10YR 6/3) coats on ped faces; firm; neutral; clear wavy boundary.
IIC	42 to 56 inches. Yellowish brown (10YR 5/6) loam; massive; occasional coarse gravel; friable; calcareous.

Remarks: On edge of small drainageway, manure dumping on this area for many years. All colors are for moist conditions to 42 in., moist to wet below 42 in.

FINCASTLE SILT LOAM (19,04,F,b)

```
      WEIGHT  PERCENT  AND  VOLUME  PERCENT  OF  WATER  RETAINED

IDENTIFICATION       T E N S I O N S  (BARS)
                                                                BD       TP        K
19   4   3   2     .1       .3       .6       3.       15.      G/CC     PCT      IN/HR

    DEPTH                                                           1
     0             52.50    47.14    39.18    31.98    24.12*   1.05     60.38    3.38
                   55.12    49.49    41.13    33.57    25.32    1.12     57.74    1.06
                   FRAGMENT 44.91     SIEVED 18.46ROCK PERCENT     .30
                                                                    1
     4             33.03    29.41    25.74    24.40     6.19    1.34     49.43     .49
                   44.26    39.40    34.49    32.69     8.29    1.47     44.53     .65
                   FRAGMENT 27.24     SIEVED  7.05ROCK PERCENT    2.32
                                                                    1
    10             28.62    25.47    23.52    22.55    15.61    1.33     49.81     .92
                   38.06    33.87    31.28    29.99    20.76    1.42     46.42     .80
                   FRAGMENT 24.88     SIEVED 12.01ROCK PERCENT
                                                                    1
    15             31.69    28.85    27.77    25.96    19.84    1.46     44.91     .22
                   46.26    42.12    40.54    37.90    28.96    1.60     39.62     .67
                   FRAGMENT 25.07     SIEVED 14.81ROCK PERCENT
                                                                    1
    25             30.39    25.64    24.65    23.13    16.72    1.52     42.64     .70
                   46.19    38.97    37.46    35.15    25.41    1.62     38.87     .49
                   FRAGMENT 24.06     SIEVED 13.12ROCK PERCENT   12.71
                                                                    1
    42             19.43    16.90    16.10    13.07     7.00    1.69     36.23     .09
                   32.83    28.56    27.20    22.08    11.83    1.74     34.34     .03
                   FRAGMENT 14.26     SIEVED  7.46ROCK PERCENT   38.96
                                                    *RERUN AS 24.52

      1=FIST
      2=CORE
      3=LOOSE
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LAFAYETTE, INDIANA

CELINA SILT LOAM (19,05,P,a)

Location: Purdue University Old Dairy Farm, 520' S of E-W cinder road, 240' W of gate at NW cor. of east woods.
Vegetation and land use: Grass
Topography: Slope, 4 percent; erosion, slight.
Drainage: Moderately well drained
Parent Material: Calcareous loam till, Late Wisconsin Age.
Described and sampled by: Ralph Sturm and G. P. Lawless

Horizon	Description
A1	0 to 3 inches. Very dark grayish brown (10YR 3/2) silt loam; weak fine granular structure; friable; many fine grass roots; mildly alkaline; abrupt smooth boundary.
A2	3 to 11 inches. Dark yellowish brown (10YR 4/4) silt loam; crushes to dark brown (10YR 4/3); weak fine and medium granular structure; dark yellowish brown (10YR 3/4) coats on ped faces; friable; common fine roots; neutral; clear wavy boundary.
B21t	11 to 21 inches. Dark yellowish brown (10YR 4/4) silty clay loam; strong fine and medium subangular blocky structure; yellowish brown (10YR 5/4) coats on ped faces; firm; few fine roots; neutral; clear wavy boundary.
IIB22t	21 to 38 inches. Dark yellowish brown (10YR 4/4) clay loam with common medium distinct light brownish gray (10YR 6/2) mottles; strong medium angular blocky structure; firm; 3 to 5 percent coarse sand and fine gravel; occasional coarse gravel; medium acid; clear wavy boundary.
IIC	38 to 48 inches. Yellowish brown (10YR 5/6) loam; massive; occasional coarse gravel; friable; calcareous.

Remarks: Ground water at 42 inches, colors are for moist conditions. This soil has too thick a silt (loess) capping to be Celina soils and not enough depth to calcareous loam till for Xenia soils.

CELINA SILT LOAM (19,05,P,a)

```
      WEIGHT  PERCENT  AND  VOLUME  PERCENT  OF  WATER  RETAINED

IDENTIFICATION        T E N S I O N S  (BARS)
                                                                BD        TP        K
19   5   1   1     .1       .3       .6       3.       15.     G/CC      PCT     IN/HR

    DEPTH                                                          3
     0           46.59    42.85    37.35    36.19    12.55      .90    66.04
                 41.93    38.56    33.61    32.57    11.29
                 FRAGMENT                     SIEVED 10.45ROCK PERCENT  1.15
                                                                   1
     3           28.74    26.35    23.96    21.84     6.44     1.38    47.92     .11
                 39.66    36.36    33.06    30.13     8.88     1.43    46.04     .26
                 FRAGMENT 23.47               SIEVED  6.37ROCK PERCENT  4.84
                                                                   1
    11           27.30    24.05    22.79    21.67    15.52     1.55    41.51     .66
                 42.31    37.27    35.32    33.58    24.05     1.65    37.74     .70
                 FRAGMENT 21.45               SIEVED 11.55ROCK PERCENT
                                                                   1
    21           29.81    25.40    24.63    23.18    11.92     1.48    44.15     .32
                 44.11    37.59    36.45    34.30    17.64     1.60    39.62     .43
                 FRAGMENT 23.32               SIEVED 12.84ROCK PERCENT 14.59
                                                                   1
    38           27.27    23.63    21.45    20.62    11.28     1.59    40.00     .09
                 43.35    37.57    34.10    32.78    17.93     1.63    38.49     .14
                 FRAGMENT 22.48               SIEVED 11.50ROCK PERCENT 18.46

     1=FIST
     2=CORE
     3=LOOSE
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CELINA SILT LOAM (19,05,P,b)

Location: Purdue University Old Dairy Farm, 460' S of E-W cinder road, 240' W of gate at NW cor. of east woods.
Vegetation and land use: Grass
Topography: Slope, 4 percent; erosion, slight.
Drainage: Moderately well drained; permeability, moderate in upper horizons, slow in lower horizons.
Parent Material: Calcareous loam till, Late Wisconsin Age.
Described and sampled by: Ralph Sturm and G. P. Lawless

Horizon	Description
A1	0 to 3 inches. Very dark grayish brown (10YR 3/2) silt loam; weak fine granular structure; friable; many fine grass roots; neutral; abrupt smooth boundary.
A2	3 to 9 inches. Dark yellowish brown (10YR 4/4) silt loam; crushes to yellowish brown; moderate, medium granular structure; brown (10YR 5/3) coats on ped faces; friable; common fine roots; slightly acid; clear wavy boundary.
B1t	9 to 17 inches. Dark yellowish brown (10YR 4/4) light silty clay loam; weak, fine and medium subangular blocky structure; brown (10YR 4/3) coats on ped faces; firm; few fine roots; medium acid; clear wavy boundary.
IIB2t	17 to 28 inches. Dark yellowish brown (10YR 4/4) clay loam with many medium distinct brown (10YR 5/3) mottles; moderate medium subangular blocky structure; firm; few fine roots; 3 to 5 percent coarse sand and fine gravel; occasional coarse gravel; medium acid; clear wavy boundary.
	28 to 32 inches. Sampled but not described.
IIC	32 to 46 inches plus. Yellowish brown (10YR 5/6) loam; massive; friable; calcareous.

Remarks: Ground water at 42 in., colors are for moist conditions. This soil has too thick a silt (loess) capping to be Celina soils and not enough depth to calcareous loam till for Xenia soils.

LAFAYETTE, INDIANA

CELINA SILT LOAM (19,05,P,b)

```
     WEIGHT  PERCENT  AND  VOLUME  PERCENT  OF  WATER  RETAINED

IDENTIFICATION        T E N S I O N S  (BARS)
                                                                 BD        TP         K
19   5   1   2      .1       .3       .6       3.       15.      G/CC      PCT      IN/HR

     DEPTH                                                         3
      0            58.86    48.73    45.94    41.17    15.97      .70     73.58
                   41.20    34.11    32.15    28.81    11.17
                   FRAGMENT                     SIEVED 13.07ROCK PERCENT  5.68
                                                                   1
      3            25.44    23.39    21.06    18.74     6.34     1.39     47.55      .36
                   35.36    32.51    29.27    26.04     8.81     1.41     46.79      .88
                   FRAGMENT 22.65               SIEVED  5.50ROCK PERCENT  3.90
                                                                   1
      9            24.72    21.15    20.56    18.40    10.09     1.55     41.51      .18
                   38.31    32.78    31.86    28.52    15.63     1.60     39.62      .27
                   FRAGMENT 20.12               SIEVED  8.38ROCK PERCENT
                                                                   1
     17            29.58    26.05    22.92    21.53    12.31     1.49     43.77      .57
                   44.07    38.81    34.15    32.07    18.34     1.62     38.87      .18
                   FRAGMENT 24.11               SIEVED 12.54ROCK PERCENT 34.19
                                                                   1
     28            24.24    23.26    22.75    19.56    10.75     1.52     42.64      .13
                   36.84    35.35    34.58    29.73    16.34     1.60     39.62      .12
                   FRAGMENT 21.28               SIEVED 12.25ROCK PERCENT 22.88
                                                                   1
     32            26.99    23.35    22.37    19.99    13.76     1.54     41.89      .05
                   41.56    35.95    34.44    30.78    21.19     1.67     36.98      0
                   FRAGMENT 20.64               SIEVED 15.34ROCK PERCENT 21.56

      1=FIST
      2=CORE
      3=LOOSE
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DANA SILT LOAM (19,06,C,a)

Location: Purdue Throckmorton Farm, 330' S and 100' W of southwesternmost small watershed; near west fence line.
Vegetation and land use: Grain stubble
Topography: Slope, 1 percent; erosion, none to slight.
Drainage: Moderately well drained; permeability, moderate in upper part, slow in lower horizons.
Parent Material: Calcareous loam till, Late Wisconsin Age.
Described and sampled by: Ralph Sturm and G. P. Lawless

Horizon	Description
Ap	0 to 7 inches. Very dark brown (10YR 2/2) silt loam; weak fine and medium granular structure; friable; many fine roots; neutral; abrupt smooth boundary.
A12	7 to 11 inches. Very dark brown (10YR 2/2) silt loam; moderate medium and coarse granular structure; friable; common fine roots; neutral; clear wavy boundary.
A3	11 to 15 inches. Dark brown (10YR 3/4) silt loam; crushes to dark brown (10YR 3/3); moderate medium and coarse granular structure; very dark grayish brown (10YR 3/2) coatings on ped faces; friable; few fine roots; slightly acid; clear wavy boundary.
B1t	15 to 22 inches. Dark brown (10YR 4/3) light silty clay loam; moderate fine and medium subangular blocky structure; dark yellowish brown (10YR 4/4) coatings on ped faces; firm; occasional fine roots; medium acid; clear wavy boundary.
B21t	22 to 34 inches. Yellowish brown (10YR 5/4) silty clay loam with few fine distinct grayish brown (10YR 5/2) mottles; strong medium subangular blocky structure; firm; medium acid; clear wavy boundary.
IIB22t	34 to 55 inches. Dark yellowish brown (10YR 4/4) clay loam with many medium distinct gray (10YR 5/1) mottles; strong coarse columnar structure breaking to strong medium and coarse subangular blocky structure; firm; 3-5 percent coarse sand and fine gravel; occasional coarse gravel; slightly acid; abrupt wavy boundary.
IIC	55 inches plus. Yellowish brown (10YR 5/6) loam; massive; 8-10 percent coarse sand and fine gravel; occasional cobble; friable; calcareous.

Remarks: Ground water table 36 in. Colors are for moist conditions in the upper 36 in. and moist to wet below 36 in. Water pump used to keep water out of pit.

DANA SILT LOAM (19,06,C,a)

```
       WEIGHT  PERCENT  AND  VOLUME  PERCENT  OF  WATER  RETAINED

IDENTIFICATION           T E N S I O N S  (BARS)
                                                                        BD        TP      K
19   6    2   1      .1        .3        .6        3.        15.       G/CC     PCT      IN/HR

     DEPTH                                                                 1
        0           31.33     27.82     27.68     24.18     10.98      1.23    53.58        .13
                    38.53     34.21     34.04     29.74     13.50      1.30    50.94        .93
                    FRAGMENT  28.72                 SIEVED   9.00ROCK  PERCENT
                                                                           1
        7           29.99     27.10     26.33     22.72     11.18      1.40    47.17        .56
                    41.98     37.94     36.86     31.80     15.65      1.45    45.28       2.48
                    FRAGMENT  25.39                 SIEVED   9.12ROCK  PERCENT
                                                                           1
      11            28.23     26.99     25.65     23.25     12.37      1.35    49.06        .44
                    38.11     36.43     34.62     31.38     16.69      1.41    46.79       1.62
                    FRAGMENT  26.53                 SIEVED   9.30ROCK  PERCENT
                                                                           1
      15            31.40     28.89     28.15     25.00     16.84      1.37    48.30       1.51
                    43.01     39.57     38.56     34.25     23.07      1.45    45.28        .36
                    FRAGMENT  25.99                 SIEVED  12.45ROCK  PERCENT
                                                           (23.58)         1
      22            33.70     29.18     28.51     25.09     17.79      1.41    46.79        .86
                    47.51     41.14     40.19     35.37     25.08      1.59    40.00        .68
                    FRAGMENT  27.46                 SIEVED  16.07ROCK  PERCENT  1.66
                                                                           1
      34            29.00     24.90     23.20     22.04     10.49      1.52    42.64        .12
                    44.08     37.84     35.26     33.50     15.94      1.63    38.49        .94
                    FRAGMENT  23.70                 SIEVED  11.34ROCK  PERCENT 10.06


       1=FIST
       2=CORE
       3=LOOSE
```

DANA SILT LOAM (19,06,C,b)

Location: Purdue Throckmorton Farm, 315' S, 155' W of southwesternmost small watershed; near west fence line.
Vegetation and land use: Grain stubble
Topography: Slope, 1 percent; erosion, none to slight.
Drainage: Moderately well drained; permeability, moderate in upper horizons, slow in lower horizons.
Parent Material: Calcareous loam till, Late Wisconsin Age.
Described and sampled by: Ralph Sturm and Paul Lawless

Horizon	Description
Ap	0 to 6 inches. Very dark brown (10YR 2/2) silt loam; weak fine and medium granular structure; friable; many fine roots; neutral; abrupt smooth boundary.
A12	6 to 10 inches. Very dark brown (10YR 2/2) silt loam; moderate fine and medium granular structure; friable; common fine roots; neutral; clear wavy boundary.
A3	10 to 14 inches. Dark yellowish brown (10YR 3/4) silt loam; moderate fine and medium granular structure; very dark brown (10YR 3/3) coats on ped faces; friable; occasional fine roots; neutral; clear wavy boundary.
B21t	14 to 23 inches. Dark yellowish brown (10YR 4/4) light silty clay loam; moderate, fine and medium subangular blocky structure; dark yellowish brown (10YR 3/4) coats on ped faces; occasional fine roots; medium acid; clear wavy boundary.
B22t	23 to 40 inches. Yellowish brown (10YR 5/8) silty clay loam with many medium distinct brown (10YR 5/3) mottles; strong medium and coarse subangular blocky structure; firm; medium acid; clear wavy boundary.
IIB23t	40 to 64 inches. Yellowish brown (10YR 5/8) sandy clay loam with many medium distinct grayish brown (10YR 5/2) mottles; strong medium and coarse subangular blocky structure; firm; 1-2 percent coarse sand and fine gravel; slightly acid; clear wavy boundary.
IIC	64 inches plus. Yellowish brown (10YR 5/6) loam with many grayish brown (10YR 5/2) mottles; friable; calcareous.

Remarks: Water table about 36 in.; IIB23t horizon very wet. Colors are for moist conditions above 36 in. and wet to moist below 36 in. Water pump used to keep water out of pit.

LAFAYETTE, INDIANA

DANA SILT LOAM (19,06,C,b)

```
        WEIGHT  PERCENT  AND  VOLUME  PERCENT  OF  WATER  RETAINED

IDENTIFICATION        T E N S I O N S  (BARS)
                                                                       BD        TP         K
19   6   2   2        .1        .3        .6        3.        15.      G/CC      PCT      IN/HR

      DEPTH                                                               1
        0           33.01     29.32     27.19     23.95     10.06      1.18     55.47       .86
                    38.95     34.59     32.08     28.26     11.87      1.23     53.58       .80
                    FRAGMENT 28.98                  SIEVED 11.05ROCK PERCENT   3.70
                                                                          1
        6           27.50     25.00     24.42     21.58      9.42      1.37     48.30       .35
                    37.67     34.25     33.45     29.56     12.90      1.42     46.42       .55
                    FRAGMENT 23.93                  SIEVED 10.04ROCK PERCENT   4.97
                                                                          1
       10           31.97     29.25     27.63     25.00     12.45      1.32     50.19       .29
                    42.20     38.61     36.47     33.00     16.43      1.41     46.79       .64
                    FRAGMENT 27.90                  SIEVED  9.49ROCK PERCENT
                                                                          1
       14           30.92     28.82     26.59     22.29     14.28      1.34     49.43       .66
                    41.43     38.61     35.63     29.86     19.13      1.45     45.28      1.06
                    FRAGMENT 27.36                  SIEVED 12.52ROCK PERCENT
                                                                          1
       23           31.60     27.58     25.31     23.03     18.18      1.41     46.79       .16
                    44.55     38.88     35.68     32.47     25.63      1.58     40.38       .61
                    FRAGMENT 26.26                  SIEVED 16.32ROCK PERCENT   1.62
                                                                          1
       40           18.27     17.61     15.35     12.99     10.35      1.48     44.15       .14
                    27.03     26.06     22.71     19.22     15.31      1.57     40.75       .03
                    FRAGMENT 17.58                  SIEVED  6.47ROCK PERCENT   9.50


        1=FIST
        2=CORE
        3=LOOSE
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LAFAYETTE, INDIANA

RAUB SILT LOAM (19,08,C,a)

Location: Purdue Throckmorton Farm, 250' S, 160' W of southwesternmost small watershed flume, near west fence line.
Vegetation and land use: Grain stubble
Topography: Slope, 1 percent; erosion, none to slight.
Drainage: Somewhat poorly drained; permeability, slow.
Parent Material: Calcareous loam till, Late Wisconsin Age.
Described and sampled by: Ralph Sturm and G. P. Lawless

Horizon	Description
Alp	0 to 7 inches. Black (10YR 2/1) silt loam; weak fine and medium granular structure; friable; many fine roots; neutral; abrupt smooth boundary.
A12	7 to 10 inches. Very dark brown (10YR 2/2) silt loam; moderate fine and medium granular structure; friable; many fine roots; slightly acid; clear wavy boundary.
Blt	10 to 16 inches. Grayish brown (10YR 5/2) light silty clay loam with few medium distinct gray (10YR 5/1) and yellowish brown (10YR 5/6) mottles; moderate medium subangular blocky structure; firm; very dark gray (10YR 3/1) organic matter accumulation in root channels, occasional roots; medium acid; clear wavy boundary.
B21t	16 to 35 inches. Yellowish brown (10YR 5/6) silty clay loam with many medium distinct gray (10YR 5/1) mottles; strong medium and coarse prismatic structure breaking to strong medium angular blocky structure; grayish brown (10YR 5/2) coats on ped faces; firm; strongly acid; clear wavy boundary.
IIB22t	35 to 52 inches. Yellowish brown (10YR 5/6) clay loam with many medium distinct gray (10YR 5/1) mottles; strong medium and coarse prismatic structure breaking to medium angular blocky structure; grayish brown (10YR 5/2) coats on ped faces; firm; neutral; clear wavy boundary.
IIC	52 to 84 inches. Yellowish brown (10YR 5/6) loam with many medium distinct gray (10YR 6/1) mottles; massive; friable; calcareous.

Remarks: Very wet; water table 36 in.--sides kept caving in. IIB22t horizon had huge prismatic structure; some peds we took out were 9 in. in diameter--very pronounced.

Colors are for moist conditions above 36 in. and moist to wet below 36 in. Used water pump to keep water out of pit. Thickness of A horizon meets minimum requirements for a mollic epipedon.

LAFAYETTE, INDIANA

RAUB SILT LOAM (19,08,C,a)

```
       WEIGHT  PERCENT  AND  VOLUME  PERCENT  OF  WATER  RETAINED

IDENTIFICATION         T E N S I O N S  (BARS)
                                                                        BD        TP        K
19   8   2   1      .1        .3        .6        3.        15.        G/CC      PCT      IN/HR

     DEPTH                                                               1
      0           32.28     29.96     28.04     23.80      8.03     1.29     51.32     2.12
                  41.64     38.64     36.17     30.70     10.35     1.37     48.30      .14
                  FRAGMENT  29.52                 SIEVED   9.85ROCK PERCENT   5.11
                                                                        1
      7           28.81     25.92     24.36     20.15     12.74     1.42     46.42      .18
                  40.91     36.80     34.59     28.61     18.09     1.51     43.02      .11
                  FRAGMENT  25.86                 SIEVED  11.32ROCK PERCENT   4.87
                                                                        1
     10           31.36     28.38     25.78     23.93     17.53     1.40     47.17      .15
                  43.90     39.73     36.09     33.50     24.54     1.56     41.13      .38
                  FRAGMENT  26.03                 SIEVED  18.94ROCK PERCENT   7.28
                                                                        1
     16           36.61     32.17     27.62     27.45     20.14     1.36     48.68      .52
                  49.78     43.75     37.56     37.33     27.39     1.57     40.75      .58
                  FRAGMENT  30.42                 SIEVED  16.42ROCK PERCENT
                                                                        1
     35           28.93     27.57     24.92     23.20     12.77     1.48     44.15      .35
                  42.81     40.80     36.88     34.33     18.89     1.58     40.38      .11
                  FRAGMENT  25.48                 SIEVED  12.16ROCK PERCENT

      1=FIST
      2=CORE
      3=LOOSE
```

RAUB SILT LOAM (19,08,C,b)

Location: Purdue Throckmorton Farm, 270' S, 90' W of southwesternmost small watershed flume, near west fence line.
Vegetation and land use: Grain stubble
Topography: Slope, 1 percent; erosion, none to slight.
Drainage: Somewhat poorly drained; permeability, slow.
Parent Material: Calcareous loam till, Late Wisconsin Age.
Described and sampled by: Ralph Sturm and G. P. Lawless

Horizon	Description
A1p	0 to 8 inches. Very dark brown (10YR 2/2) silt loam; weak fine and medium granular structure; friable; many fine roots; slightly acid; abrupt smooth boundary.
A3	8 to 12 inches. Dark brown (10YR 3/3) silt loam with few fine faint dark grayish brown (10YR 4/2) mottles; moderate fine to coarse granular structure; friable; many fine roots; medium acid; clear wavy boundary.
B1t	12 to 20 inches. Yellowish brown (10YR 5/6) light silty clay loam with many medium distinct dark grayish brown (10YR 4/2) mottles; moderate medium prismatic structure breaking to weak fine subangular blocky structure; firm; gray (10YR 5/1) coats on ped faces; occasional fine roots; medium acid; clear wavy boundary.
B21t	20 to 31 inches. Yellowish brown (10YR 5/8) silty clay loam with many medium distinct dark yellowish brown (10YR 4/4) mottles; strong, medium subangular blocky structure; firm; coats of gray (10YR 5/1) on ped faces; strongly acid; clear wavy boundary.
IIB22t	31 to 57 inches. Gray (10YR 5/1) clay loam with many medium distinct dark yellowish brown (10YR 4/4) mottles; moderate to strong coarse prismatic structure; firm; coats of dark gray (10YR 4/1) on some ped faces; medium acid in upper part to neutral in lower part of horizon; clear wavy boundary.
IIC	57 inches plus. Yellowish brown (10YR 5/6) loam with many medium distinct gray (10YR 6/1) mottles; massive; friable; calcareous.

Remarks: Ground water table at 36 in. Color above 36 in. are for moist conditions, below 36 in. are for moist to wet conditions. Used pump to keep water out of pit.

RAUB SILT LOAM (19,08,C,b)

```
      WEIGHT  PERCENT  AND  VOLUME  PERCENT  OF  WATER  RETAINED

IDENTIFICATION        T E N S I O N S  (BARS)
                                                                BD        TP          K
19   8   2   2     .1        .3        .6        3.        15.        G/CC      PCT       IN/HR

    DEPTH                                                            1
     0              28.87     26.63     24.37     21.73     10.12     1.30     50.94       .05
                    37.53     34.61     31.68     28.24     13.15     1.42     46.42       .18
                    FRAGMENT  24.40                  SIEVED 10.73ROCK PERCENT  4.72
                                                                     1
     8              28.39     26.14     25.25     22.44     12.97     1.39     47.55       .60
                    39.46     36.33     35.09     31.19     18.02     1.48     44.15       .82
                    FRAGMENT  25.88                  SIEVED 10.11ROCK PERCENT
                                                                     1
    12              30.58     28.31     27.41     24.44     18.45     1.41     46.79       .10
                    43.11     39.91     38.64     34.46     26.01     1.53     42.26       .84
                    FRAGMENT  25.75                  SIEVED 17.17ROCK PERCENT  1.83
                                                                     1
    20              33.74     32.09     29.35     25.90     19.14     1.38     47.92       .06
                    46.56     44.28     40.50     35.74     26.41     1.62     38.87       .40
                    FRAGMENT  29.74                  SIEVED 20.39ROCK PERCENT   .52
                                                                     1
    31              24.56     23.16     19.55     19.39     12.68     1.56     41.13       .14
                    38.31     36.12     30.49     30.24     19.78     1.66     37.36       .95
                    FRAGMENT  21.30                  SIEVED  9.94ROCK PERCENT  9.79
                                                                     1
    57              13.15     10.94      9.94      9.26      5.11     1.62     38.87       0
                    21.30     17.72     16.10     15.00      8.27     1.72     35.09       .12
                    FRAGMENT  10.96                  SIEVED  2.20ROCK PERCENT 28.54

      1=FIST
      2=CORE
      3=LOOSE
```

PARR SILT LOAM (19,09,P,a)

Location: Purdue Throckmorton Farm; 300' W of Hwy. 43 and 30' S of E-W road to South Raub.
Vegetation and land use: Grass
Topography: Slope, 10 percent; erosion, none to slight.
Drainage: Well drained; permeability, moderate.
Parent Material: Calcareous loam till, Late Wisconsin Age.
Described and sampled by: Ralph Sturm and G. P. Lawless

Horizon	Description
A1	0 to 8 inches. Very dark brown (10YR 2/2) gritty silt loam; moderate, medium granular structure; friable; common, fine grass roots; alkaline; clear smooth boundary.
A3	8 to 12 inches. Dark brown (10YR 3/3) gritty silt loam; moderate, fine and medium subangular blocky structure; friable; few fine grass roots; alkaline; gradual smooth boundary.
B1t	12 to 17 inches. Dark brown (10YR 4/3) light clay loam; moderate fine and medium subangular blocky structure; very dark grayish brown coatings on ped faces; firm; occasional fine roots; 3-5 percent coarse sand and fine gravel; alkaline; gradual wavy boundary.
B2t	17 to 29 inches. Dark brown (7.5YR 4/4) clay loam; moderate fine and medium subangular blocky structure; dark yellowish brown (10YR 3/4) coatings on ped faces; firm; 3-5 percent coarse sand and fine gravel; few voids 2 to 5 mm.; alkaline; abrupt smooth boundary.
C	29 to 46 inches plus. Yellowish brown (10YR 5/6) loam; massive; 8-10 percent coarse sand and fine gravel; occasional coarse gravel; friable; calcareous.

Remarks: Dust from road may contribute to high pH throughout profile. Colors are for moist conditions in the upper 36 in. and moist to wet below 36 in.

PARR SILT LOAM (19,09,P,a)

```
      WEIGHT  PERCENT  AND  VOLUME  PERCENT  OF  WATER  RETAINED

IDENTIFICATION       T E N S I O N S  (BARS)
                                                                    BD        TP        K
19   9   1   1     .1        .3        .6        3.        15.      G/CC      PCT     IN/HR

     DEPTH                                                             1
      0          24.66     21.29     18.69     16.90      9.52     1.45     45.28     1.31
                 35.75     30.87     27.10     24.50     13.80     1.54     41.89      .98
                 FRAGMENT  20.26                 SIEVED   9.00ROCK PERCENT 13.30
                                                                       1
      8          25.10     23.04     21.46     18.45     11.78     1.43     46.04     3.74
                 35.89     32.94     30.68     26.38     16.84     1.57     40.75     7.84
                 FRAGMENT  21.33                 SIEVED  10.20ROCK PERCENT 34.74
                                                                       1
     12          25.00     22.99     21.31     18.43     13.13     1.41     46.79      .28
                 35.25     32.41     30.04     25.98     18.51     1.58     40.38     3.06
                 FRAGMENT  22.56                 SIEVED  10.32ROCK PERCENT 14.67
                                                                       1
     17          22.95     21.11     20.08     16.01     14.18     1.56     41.13      .28
                 35.80     32.93     31.32     24.97     22.12     1.68     36.60      .49
                 FRAGMENT  20.41                 SIEVED   9.10ROCK PERCENT  3.35
                                                         (14.28)       1
     29          12.09     10.92      8.60      7.39      4.28     1.65     37.74      .64
                 19.94     18.01     14.19     12.19      7.06     1.71     35.47      .50
                 FRAGMENT  11.91                 SIEVED   4.52ROCK PERCENT 34.64

       1=FIST
       2=CORE
       3=LOOSE
```

LAFAYETTE, INDIANA

PARR SILT LOAM (19,09,P,b)

Location: Purdue Throckmorton Farm, E of Hwy. 43, 600' NNE of bridge crossing creek at E end of lane which runs east and west of south side of building.
Vegetation and land use: Permanent pasture
Topography: Slope, 2 percent; on ridge 30' wide between two sloping areas which were moderately to severely eroded 25+ years ago; erosion, slight to moderate.
Drainage: Well drained; permeability, moderate.
Parent Material: Calcareous loam till, Late Wisconsin Age.
Described and sampled by: Ralph Sturm and G. P. Lawless

Horizon	Description
A1p	0 to 7 inches. Very dark brown (10YR 2/2) gritty silt loam; weak fine granular structure; friable; many fine grass roots; medium acid; clear smooth boundary.
A12	7 to 11 inches. Very dark brown (10YR 2/2) loam; moderate fine and medium granular structure; friable; many fine grass roots; 3-5 percent coarse sand and occasional coarse gravel; medium acid; abrupt wavy boundary.
B1t	11 to 15 inches. Dark yellowish brown (10YR 4/4) light clay loam; moderate fine subangular blocky structure; dark yellowish brown (10YR 3/3) coatings on ped faces; firm; common fine grass roots; 3-5 percent coarse sand and occasional coarse gravel; slightly acid; clear wavy boundary.
B2t	15 to 30 inches. Dark yellowish brown (10YR 4/4) clay loam; moderate to strong medium subangular blocky structure; dark yellowish brown (10YR 3/3) coatings on ped faces; firm; few fine roots; 3-5 percent coarse sand and fine gravel; common coarse gravel; neutral (6.6); clear wavy boundary.
C	30 to 56 inches plus. Yellowish brown (10YR 5/4) loam; massive; friable; occasional pockets of coarse sand 2 in. by 12 in. long.

Remarks: This area has been in permanent grass at least 25 years, but between ridges it was severely eroded.

LAFAYETTE, INDIANA

PARR SILT LOAM (19,09,P,b)

```
      WEIGHT  PERCENT  AND  VOLUME  PERCENT  OF  WATER  RETAINED

IDENTIFICATION        T E N S I O N S  (BARS)
                                                                   BD        TP      K
19   9   1   2     .1        .3        .6        3.       15.      G/CC      PCT    IN/HR

     DEPTH                                                           1
      0            25.62     23.89     22.26     15.75     8.45     1.44      45.66    .58
                   36.89     34.40     32.05     22.68    12.16     1.51      43.02    .61
                   FRAGMENT  21.67                 SIEVED  7.68ROCK PERCENT  2.78
                                                                     1
      7            26.13     21.29     20.41     15.02    12.73     1.45      45.28   1.56
                   37.88     30.87     29.59     21.77    18.45     1.60      39.62   1.54
                   FRAGMENT  21.93                 SIEVED 15.67ROCK PERCENT 23.01
                                                                     1
     11            25.13     22.47     21.52     18.13    10.15     1.43      46.04   1.29
                   35.93     32.13     30.77     25.92    14.51     1.56      41.13   3.26
                   FRAGMENT  21.76                 SIEVED 10.91ROCK PERCENT 29.53
                                                                     1
     15            26.27     23.17     22.66     19.04    14.14     1.45      45.28    .72
                   38.09     33.59     32.85     27.60    20.50     1.62      38.87   1.54
                   FRAGMENT  22.71                 SIEVED 16.11ROCK PERCENT 22.11
                                                                     1
     30            14.40     12.41     11.07      9.09     4.60     1.69      36.23    .44
                   24.33     20.97     18.70     15.36     7.77     1.76      33.58   1.29
                   FRAGMENT  12.12                 SIEVED  4.97ROCK PERCENT 42.18

      1=FIST
      2=CORE
      3=LOOSE
```

PARR SILT LOAM (19,09,C,a)

Location: Purdue Throckmorton Farm, 540' W of Hwy. 43 and 330' S of E-W road to South Raub.
Vegetation and land use: Small grain stubble planted to clover.
Topography: Slope, 4 percent; erosion, moderate
Drainage: Well drained; permeability, moderate.
Parent Material: Calcareous loam till, Late Wisconsin Age.
Described and sampled by: Ralph Sturm and G. P. Lawless

Horizon	Description
Ap	0 to 8 inches. Very dark brown (10YR 2/2) silt loam; moderate to strong, fine and medium granular structure; friable; common fine roots; slightly acid; abrupt smooth boundary.
IIB1t	8 to 15 inches. Dark brown (10YR 4/3) light clay loam; weak fine and medium subangular blocky structure; dark yellowish brown (10YR 3/4) coatings on ped faces; firm; few fine roots; 3-5 percent coarse sand and fine gravel; neutral; clear wavy boundary.
IIB21t	15 to 19 inches. Dark brown (10YR 4/3) light clay loam; weak to moderate medium subangular blocky structure; dark yellowish brown (10YR 3/4) coatings on ped surfaces; firm; few fine roots; 3-5 percent coarse sand and fine gravel; slightly acid; clear wavy boundary.
IIB22t	19 to 33 inches. Dark brown (10YR 4/3) clay loam; moderate medium subangular blocky structure; dark brown (10YR 3/3) coatings on ped faces; firm; scattered few roots; 5-7 percent coarse sand and fine gravel; medium acid; abrupt smooth boundary.
IIC	33 to 48 inches. Yellowish brown (10YR 5/4) loam; massive; 8-10 percent coarse sand and fine gravel; occasional cobble; friable; calcareous.

Remarks: Colors are for moist conditions in the upper 36 in. and moist to wet below 36 in.

*Does not qualify as Typic Argiudolls because of moderate erosion.

LAFAYETTE, INDIANA

PARR SILT LOAM (19,09,C,a)

```
      WEIGHT  PERCENT  AND  VOLUME  PERCENT  OF  WATER  RETAINED

IDENTIFICATION        T E N S I O N S  (BARS)
                                                                  BD        TP      K
19   9   2   1      .1        .3        .6        3.        15.       G/CC      PCT    IN/HR

     DEPTH                                                         1
      0           26.77     22.58     21.24     18.26     11.97     1.45     45.28     .37
                  38.81     32.74     30.79     26.47     17.35     1.56     41.13     .42
                  FRAGMENT  20.27                 SIEVED   9.40ROCK PERCENT   2.84
                                                                   1
      8           24.88     21.98     21.69     17.89     12.92     1.52     42.64     .39
                  37.81     33.40     32.96     27.19     19.63     1.67     36.98    1.77
                  FRAGMENT  21.24                 SIEVED  12.43ROCK PERCENT  20.44
                                                                   1
     15           22.31     19.92     18.74     16.99     12.91     1.49     43.77     .78
                  33.24     29.68     27.92     25.31     19.23     1.66     37.36     .48
                  FRAGMENT  20.36                 SIEVED  17.56ROCK PERCENT   5.88
                                                         (16.64)           1
     19           22.93     21.53     20.44     17.82     12.14     1.53     42.26    1.13
                  35.08     32.94     31.27     27.26     18.57     1.66     37.36     .56
                  FRAGMENT  19.06                 SIEVED   9.46ROCK PERCENT  14.81

      1=FIST
      2=CORE
      3=LOOSE
```

PARR SILT LOAM (19,09,C,b)

Location: Purdue Throckmorton Farm, 570' W of Hwy. 43 and 570' S of E-W road to South Raub.
Vegetation and land use: Grain stubble
Topography: Slope, 4 percent; erosion, moderate
Drainage: Well drained; permeability, moderate.
Parent Material: Calcareous loam till, Late Wisconsin Age.
Described and sampled by: Ralph Sturm and G. P. Lawless

Horizon	Description
Ap	0 to 7 inches. Very dark brown (10YR 2/2) silt loam; weak coarse platy structure breaking to moderate medium and coarse granular structure; friable; common fine roots; neutral; abrupt smooth boundary.
IIB21t	7 to 14 inches. Dark yellowish brown (10YR 4/4) clay loam; weak medium prismatic structure breaking to moderate fine and medium subangular blocky structure; dark yellowish brown (10YR 3/3) coatings on ped faces; firm; few fine roots; occasional coarse gravels; slightly acid; clear wavy boundary.
IIB22t	14 to 26 inches. Dark yellowish brown (10YR 4/4) gritty clay loam; moderate to strong, medium and coarse subangular blocky structure; dark yellowish brown (10YR 3/3) coatings on ped faces; firm; 3-5 percent coarse sand and fine gravel; medium acid; gradual wavy boundary.
IIB23t	26 to 33 inches. Dark yellowish brown (10YR 4/4) gritty clay loam; moderate medium and coarse subangular blocky structure; dark yellowish brown (10YR 3/3) coatings on ped faces; firm; common coarse sand and fine gravel; occasional coarse gravel; neutral; abrupt wavy boundary.
IIC	33 to 56 inches plus. Yellowish brown (10YR 5/4) loam; massive; 8-10 percent coarse sand and fine gravel; occasional coarse gravel; friable; calcareous.

Remarks: Colors are for moist conditions in the upper 36 in. and moist to wet below 36 in.

*Does not qualify as Typic Argiudolls because of moderate erosion.

LAFAYETTE, INDIANA

PARR SILT LOAM (19,09,C,b)

```
     WEIGHT  PERCENT  AND  VOLUME  PERCENT  OF  WATER  RETAINED

IDENTIFICATION        T E N S I O N S  (BARS)
                                                                  BD        TP     K
19   9   2   2     .1        .3        .6        3.        15.      G/CC      PCT   IN/HR

     DEPTH                                                          1
      0           24.07     21.97     20.57     17.12     12.05     1.43     46.04    .29
                  34.42     31.41     29.41     24.48     17.23     1.51     43.02    .04
                  FRAGMENT  22.40                 SIEVED   8.91ROCK PERCENT   2.66
                                                                    1
      7           25.40     23.52     21.35     19.23     15.46     1.50     43.40    .84
                  38.10     35.28     32.02     28.84     23.19     1.66     37.36   3.51
                  FRAGMENT  21.82                 SIEVED  15.51ROCK PERCENT  16.61
                                                                    1
     14           28.49     23.33     22.81     19.71     15.01     1.44     45.66    .92
                  41.02     33.59     32.84     28.38     21.61     1.57     40.75   2.12
                  FRAGMENT  20.73                 SIEVED  18.13ROCK PERCENT  20.46
                                                                    1
     26           25.58     20.27     19.19     17.37     12.41     1.55     41.51    .02
                  39.64     31.41     29.74     26.92     19.23     1.66     37.36    .04
                  FRAGMENT  19.15                 SIEVED  14.35ROCK PERCENT  25.65

      1=FIST
      2=CORE
      3=LOOSE
```

MARSHALL SILTY CLAY LOAM (20,01,C,a)

Location: Soil Conservation Experimental Farm, R.R. #2, Shenandoah, Iowa
Vegetation and land use: Grass
Topography: Rolling, approximately 6 percent slope.
Drainage: Good drainage
Parent Material: Wisconsin Loess
Described and sampled by: L. A. Clark, J. R. Nixon, G. A. Schumaker

Horizon	Description
Ap	0 to 8 inches. Very dark brown (10YR 2/2) silty clay loam; dark gray (10YR 4/1 dry); moderate fine and very fine subangular blocky structure; friable; many roots and root channels; pH 6.0; clear smooth boundary.
B21	8 to 18 inches. Dark brown (10YR 3/3) silty clay loam; kneaded very dark grayish brown (10YR 4/3); moderate very fine subangular blocky structure; friable; many roots; few worm holes; dark brown (10YR 3/3) color seems to be coatings on ped faces with interior ped colors near the very dark grayish brown (10YR 4/3); pH 6.2; clear smooth boundary.
B22	18 to 28 inches. Dark brown (10YR 4/3) silty clay loam; kneaded dark yellowish brown (10YR 4/4); few fine light brownish gray (10YR 6/2) mottles; weak very fine subangular blocky structure; friable; few soft black (10YR 2/1) oxides; few roots, few worm holes; pH 6.4; gradual smooth boundary.
B3	28 to 38 inches. Brown (10YR 5/3) light silty clay loam; kneaded the same; common, medium, light brownish gray (10YR 6/2) mottles; weak prismatic breaking to weak fine subangular blocky structure; friable; few roots, few worm holes; many pores; few black (10YR 2/1) oxide coatings on ped faces as well as a few fine black soft oxides; pH 6.6; gradual smooth boundary.
C	38 inches plus. Yellowish brown (10YR 5/4) silt loam; kneaded the same; many medium light gray (10YR 6/1) mottles increasing in size with depth and common fine yellowish brown (10YR 5/6 and 5/8) mottles; massive with some vertical cleavage faces in the upper 8" of this horizon; friable; few roots, many pores, and few worm holes; black oxide coatings and fine soft oxides common throughout; pH 6.6.

Remarks: All colors moist unless otherwise stated.

Rather distinct surface structure probably due to grass and pasturing by livestock; 6 to 8 inch surface horizons are representative of these two watershed plots.

Horizon designation was determined in a pit but descriptions were written from a 2" core sampled adjacent to the pit. The reason was snow and cold. Sample taken from watershed area designated as Plot V. Taken near the south border. pH determined by field kit.

MARSHALL SILTY CLAY LOAM (20,01,C,a)

```
      WEIGHT  PERCENT  AND  VOLUME  PERCENT  OF  WATER  RETAINED

IDENTIFICATION        T E N S I O N S  (BARS)
                                                                    BD       TP      K
20   1   2   1     .1       .3       .6       3.       15.         G/CC     PCT    IN/HR

     DEPTH                                                           1
       0           29.53    26.19    25.98    20.72    18.43       1.39    47.55    .06
                   41.04    36.40    36.11    28.80    25.61       1.67    36.98    .16
                   FRAGMENT 27.31               SIEVED 15.54ROCK PERCENT
                                                                     1
       8           30.65    28.77    28.24    25.00    23.38       1.27    52.08   1.86
                   38.92    36.53    35.86    31.75    29.69       1.58    40.38   1.43
                   FRAGMENT 29.88               SIEVED 17.38ROCK PERCENT
                                                      (24.05)        1
      18           30.68    27.20    25.20    23.30    21.96       1.25    52.83   1.26
                   38.35    34.00    31.50    29.12    27.45       1.56    41.13   1.20
                   FRAGMENT 30.10               SIEVED 21.83ROCK PERCENT  1.99
                                                                     1
      28           31.81    28.67    28.46    22.49    20.57       1.26    52.45   4.49
                   40.08    36.12    35.85    28.33    25.91       1.50    43.40    .84
                   FRAGMENT 29.55               SIEVED 14.33ROCK PERCENT
                                                      (17.58)        1
      38           38.65    30.87    29.65    23.07    13.32       1.28    51.70    .24
                   49.47    39.51    37.95    29.52    17.04       1.49    43.77    .26
                   FRAGMENT 31.84               SIEVED 14.18ROCK PERCENT   .64

      1=FIST
      2=CORE
      3=LOOSE
```

MARSHALL SILTY CLAY LOAM (20,01,C,b)[1]

Location: Soil Conservation Experimental Farm, R.R. #2, Shenandoah, Iowa
Vegetation and land use: Grass
Topography: Rolling, approximately 8 to 9 percent slope.
Drainage: Good drainage
Parent Material: Wisconsin loess
Described and sampled by: L. A. Clark, J. R. Nixon, G. A. Schumaker

Horizon	Description
Ap	0 to 6 inches. Very dark gray (10YR 3/1) silty clay loam; kneaded very dark grayish brown (10YR 3/2); grayish brown (10YR 5/2) dry; fine and very fine subangular blocky structure; friable; many roots and few worm holes; pH 6.2; abrupt smooth boundary.
B21	6 to 13 inches. Olive brown (2.5Y 4/4) to light olive brown (2.5Y 5/4) silty clay loam; kneaded the same; weak very fine subangular blocky structure; friable; few roots and few very fine pores; few black (10YR 2/1) oxides and some oxide stains or mottles of yellowish red (5YR 5/6); occasionally small root channels completely filled with oxide concretions called "pipe stems" approximately 1/8" in diameter; pH 6.6; gradual smooth boundary.
B22	13 to 20 inches. Light olive brown (2.5Y 5/4) and some grayish brown (2.5Y 5/2) silty clay loam; kneaded the same; common reddish brown (5YR 5/4) and yellowish red (5YR 5/6) oxide stains or mottles on ped faces and along root channels; very weak subangular blocky structure; friable; few roots and few very fine pores; oxide concretions along root channels or worm holes commonly called "pipe stems" approx. 1/4" in diameter; pH 6.6; gradual smooth boundary.
B23	20 to 27 inches. Grayish brown (2.5Y 5/2) and light brownish gray (2.5Y 6/2) light silty clay loam; kneaded color the same; common reddish brown (5YR 5/4) and yellowish red (5YR 5/6) oxide stains or mottles; massive breaking with some vertical faces; friable; few roots, few fine pores, and few worm holes; few black (10YR 2/1) oxides and some pipe stem-like oxides 1/4" in diameter; pH 6.6; gradual smooth boundary.
B3 C1	27 to 36 inches. Grayish brown (2.5Y 5/2) and light brownish gray (2.5Y 6/2) light silty clay loam to heavy silt loam; kneaded grayish brown (2.5Y 5/2); strong brown (7.5YR 5/6) oxides stains or mottles; massive breaking with some vertical faces; friable; few fine roots; many fine pores and few worm holes; few "pipe stems"; pH 6.6; gradual smooth boundary.
C2	36 inches plus. Light brownish gray (2.5Y 6/2) heavy silt loam; strong brown (7.5YR 5/6 and 5/8) oxides or mottles; massive; friable; many pores and few worm holes; occasional "pipe stems"; black oxides are very few at 48" but increase with depth; pH 6.6.

Remarks: Description from core at pit site. Horizonation determined in the pit. Sample taken from watershed area designated as Plot Z. Taken near the center of the area. pH determined by field kit; colors moist unless otherwise stated.

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[1] This profile will be very close to the proposed "Nira" series. It will probably be Nira silty clay loam--variant. Represents approximately 45 percent of the area. Called Marshall silt loam on previous survey. L.A.C.

MARSHALL SILTY CLAY LOAM (20,01,C,b)

```
    WEIGHT  PERCENT  AND  VOLUME  PERCENT  OF  WATER  RETAINED

IDENTIFICATION        T E N S I O N S  (BARS)
                                                                  BD        TP    K
20   1   2   2     .1        .3        .6        3.        15.     G/CC      PCT  IN/HR

     DEPTH                                                          1
      0           30.58     27.11     25.88     22.80     20.17    1.38     47.92    .6
                  42.20     37.41     35.71     31.46     27.83    1.60     39.62    .0
                  FRAGMENT  26.12                  SIEVED 18.53ROCK PERCENT  1.51
                                                                    1
      6           31.06     26.92     27.14     22.80     20.67    1.27     52.08    .6
                  39.44     34.18     34.46     28.95     26.25    1.55     41.51   1.6
                  FRAGMENT  28.29                  SIEVED 19.48ROCK PERCENT   .24
                                                                    1
     13           28.02     27.48     25.80     22.37     15.56    1.27     52.08    .2
                  35.58     34.89     32.76     28.40     19.76    1.54     41.89   1.3
                  FRAGMENT  28.21                  SIEVED 17.45ROCK PERCENT   .37
                                                                    1
     20           30.12     26.47     23.03     21.63     19.13    1.25     52.83   1.6
                  37.65     33.08     28.78     27.03     23.91    1.53     42.26    .6
                  FRAGMENT  28.12                  SIEVED 13.75ROCK PERCENT
                                                         (15.90)    1
     27           31.87     26.92     26.50     21.05     18.59    1.36     48.68    .4
                  43.34     36.61     36.04     28.62     25.28    1.63     38.49    .2
                  FRAGMENT  27.11                  SIEVED 14.82ROCK PERCENT
                                                                    1
     36           31.37     30.57     29.65     24.36     17.74    1.35     49.06    .3
                  42.34     41.26     40.02     32.88     23.94    1.50     43.40    .0
                  FRAGMENT  29.17                  SIEVED 13.43ROCK PERCENT


      1=FIST
      2=CORE
      3=LOOSE
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COLO SILTY CLAY LOAM--overwashed (20,03,C,a)

Location: Soil Conservation Experimental Farm, R.R. #2, Shenandoah, Iowa
Vegetation and land use: Brome grass
Topography: 2 percent slope
Drainage: Imperfect
Parent Material: Alluvial and colluvial materials from loess soils upslope.
Described and sampled by: L. A. Clark and G. A. Schumaker

Horizon	Description
Ap	0 to 8 inches. Very dark brown (10YR 2/2) heavy silt loam; kneaded color the same; fine, weak subangular blocky structure; friable; many roots; abrupt smooth boundary.
C1	8 to 22 inches. Very dark gray (10YR 3/1) heavy silt loam to light silty clay loam; kneaded color the same; medium blocky breaking to fine subangular blocky structure; friable; many roots and pores; few worm holes; abrupt smooth boundary.
IIA1	22 to 30 inches. Black (10YR 2/1) light silty clay loam; kneaded color the same; weak very fine subangular blocky structure; friable; many roots; few fine pores; few worm holes; gradual smooth boundary.
IIB1	30 to 38 inches. Very dark gray (10YR 3/1) light silty clay loam; kneaded color very dark grayish brown (10YR 3/2); few fine reddish brown (5YR 3/4) mottles; fine subangular blocky structure; friable; few roots and pores; few worm holes; gradual smooth boundary.
IIB21	38 to 51 inches. Very dark gray (10YR 3/1) silty clay loam; kneaded color is very dark grayish brown (10YR 3/2); common dark reddish brown (5YR 3/4) and brown to dark brown (7.5YR 4/4) mottles; weak medium prismatic breaking to fine subangular blocky structure; slightly firm; few roots and pores; few worm holes; few Fe and Mn concretions; gradual smooth boundary.
IIB22	51 to 60 inches. Very dark grayish brown (2.5Y 3/2) silty clay loam; common yellowish red (5YR 4/6), brown to dark brown (7.5YR 4/4) and few dark gray (N 4/0) mottles; medium subangular blocky with a tendency to become massive; slightly firm; few roots, pores and wormholes; common Fe and Mn concretions.

Remarks: All colors moist unless otherwise stated.

Water table appeared to be at about 60". Bright sheens on ped faces in the B horizon appeared to be moisture. Probe to 72" did not contact glacial materials.

Location: Plot Z in drainageway 30 ft. north of road culvert and 160 ft. west of center of gravel road.

COLO SILTY CLAY LOAM--overwashed (20,03,C,a)

```
     WEIGHT  PERCENT  AND  VOLUME  PERCENT  OF  WATER  RETAINED

IDENTIFICATION        T E N S I O N S  (BARS)
                                                                    BD         TP       K
20   3   2   1      .1        .3        .6        3.        15.      G/CC       PCT     IN/HR

    DEPTH                                                              1
     0             33.97     30.23     27.77     23.44     18.99     1.37     48.30     .38
                   46.53     41.41     38.04     32.11     26.01     1.55     41.51    5.10
                   FRAGMENT  28.71                 SIEVED  13.15ROCK  PERCENT
                                                         (23.32)       1
     8             29.15     27.05     25.45     23.45     13.81     1.37     48.30    3.76
                   39.93     37.05     34.86     32.12     18.91     1.53     42.26    7.82
                   FRAGMENT  27.20                 SIEVED  15.84ROCK  PERCENT  3.77
                                                                       1
    22             36.07     32.59     30.72     26.34     15.30     1.17     55.85    5.22
                   42.20     38.13     35.94     30.81     17.90     1.32     50.19    1.73
                   FRAGMENT  30.93                 SIEVED  19.04ROCK  PERCENT  1.95
                                                                       1
    30             32.64     28.76     27.64     24.30     20.48     1.30     50.94    5.41
                   42.43     37.38     35.93     31.59     26.62     1.46     44.91     .51
                   FRAGMENT  27.27                 SIEVED  15.29ROCK  PERCENT
                                                         (24.15)       1
    38             31.01     27.91     27.19     24.18     18.97     1.36     48.68    2.54
                   42.17     37.95     36.97     32.88     25.79     1.50     43.40    6.18
                   FRAGMENT  27.44                 SIEVED  15.86ROCK  PERCENT
                                                                       1
    51             31.41     29.30     27.91     24.75     19.55     1.39     47.55    4.34
                   43.65     40.72     38.79     34.40     27.17     1.60     39.62    7.20
                   FRAGMENT  27.61                 SIEVED  15.10ROCK  PERCENT
                                                         (24.71)

     1=FIST
     2=CORE
     3=LOOSE
```

COLO SILTY CLAY LOAM--overwashed (20,03,C,b)

Location: Soil Conservation Experimental Farm, R.R. #2, Shenandoah, Iowa
Vegetation and land use: Corn
Topography: Less than 1 percent slope
Drainage: Imperfect
Parent Material: Alluvial and colluvial materials from loess and glacial till soils upslope; about 80 percent and 20 percent respectively.
Described and sampled by: J. R. Nixon and G. A. Schumaker

Horizon	Description
Ap	0 to 8 inches. Very dark brown (10YR 2/2) heavy silt loam to light silty clay loam; weak very fine to fine subangular blocky structure; friable; many roots and pores; abrupt smooth boundary.
C1	8 to 16 inches. Black (10YR 2/1) to very dark gray (10YR 3/1) heavy silt loam to light silty clay loam; kneaded color very dark gray (10YR 3/1); weak fine subangular blocky structure; friable; many roots and pores; abrupt smooth boundary.
IIA1	16 to 28 inches. Black (N2/0) to (10YR 2/1) light silty clay loam; kneaded color is black (10YR 2/1); weak very fine to fine subangular blocky structure; friable; common roots and pores; gradual smooth boundary.
IIA3	28 to 42 inches. Black (10YR 2/1) to very dark gray (10YR 3/1) light silty clay loam; kneaded very dark gray (10YR 3/1); very fine subangular blocky structure; friable; few roots and pores; gradual smooth boundary.
IIB1	42 to 53 inches. Very dark gray (10YR 3/1) silty clay loam; kneaded color the same; medium to strong fine subangular blocky structure; firm; few pores; clear smooth boundary.
IIB2	53 to 60 inches. Very dark gray (10YR 3/1) and dark gray (10YR 4/1) silty clay loam; kneaded color dark gray (10YR 4/1); some few mottles of grayish brown (10YR 5/2); tends to be massive with some verticle cleavage faces; firm; few pores.

Remarks: All colors moist unless otherwise stated.

No water table at 60". Bright sheens on ped faces of the A3 and B horizons seem to be moisture.

Location: Field G 50 ft. north and 24 ft. east of the southwest fence corner along Highway #2.

CLARINDA, IOWA

COLO SILTY CLAY LOAM--overwashed (20,03,C,b)

```
       WEIGHT  PERCENT  AND  VOLUME  PERCENT  OF  WATER  RETAINED

IDENTIFICATION         T E N S I O N S  (BARS)
                                                                       BD       TP      K
20   3   2   2     .1        .3        .6        3.        15.        G/CC      PCT    IN/HR

     DEPTH                                                                 1
      0          34.70     29.57     24.90     24.24     12.95     1.43      46.04    1.10
                 49.62     42.28     35.60     34.66     18.51     1.60      39.62    1.93
                 FRAGMENT  26.44                SIEVED  14.57ROCK  PERCENT   1.65
                                                                           1
      8          32.74     29.29     26.63     24.88     13.62     1.27      52.08     .21
                 41.57     37.19     33.82     31.59     17.29     1.45      45.28    1.28
                 FRAGMENT  28.94                SIEVED  14.90ROCK  PERCENT   1.22
                                                                           1
     16          38.74     35.35     33.33     29.87     20.73     1.18      55.47    1.78
                 45.71     41.71     39.32     35.24     24.46     1.36      48.68    5.04
                 FRAGMENT  34.47                SIEVED  22.50ROCK  PERCENT   6.20
                                                                           1
     28          31.18     29.08     28.35     24.24     19.44     1.42      46.42    4.94
                 44.27     41.29     40.25     34.42     27.60     1.64      38.11    1.07
                 FRAGMENT  28.44                SIEVED  19.13ROCK  PERCENT    .80
                                                                           1
     42          27.72     25.53     24.54     20.85     17.82     1.40      47.17   14.22
                 38.80     35.74     34.35     29.19     24.94     1.54      41.89     .99
                 FRAGMENT  24.47                SIEVED  15.88ROCK  PERCENT
                                                                           1
     53          29.90     28.42     27.57     23.42     19.08     1.34      49.43    3.18
                 40.06     38.08     36.94     31.38     25.56     1.58      40.38    1.90
                 FRAGMENT  27.93                SIEVED  15.28ROCK  PERCENT

       1=FIST
       2=CORE
       3=LOOSE
```

GRUNDY SILT LOAM (24,01,C,a)

Location: Bethany watershed; E¼ SE¼ NW¼ Sec. 21, T63N, R29W.
Vegetation and land use: Alfalfa
Topography: Crest of upland divide, 1 percent slope
Drainage: Moderately slow
Parent Material: Glacial till
Described and sampled by: J. Wiley Scott and G. A. Schumaker

Horizon	Description
Ap	0 to 7 inches. Black (10YR 2/1) heavy silt loam; very dark gray (10YR 3/1) crushed; strong fine granular; very friable; plentiful grass roots; slightly vesicular; medium to strongly acid; abrupt smooth boundary; 7" thick.
A1	7 to 11 inches. Black (10YR 2/1) heavy silt loam; very dark brown (10YR 2/2) crushed; weak fine subangular blocky breaking to moderate fine granular; friable; plentiful grass roots; slightly vesicular; some worm holes; medium to strongly acid; clear wavy boundary; 4 inches thick.
B1	11 to 14 inches. Dark grayish brown (10YR 4/2) silty clay loam; few fine faint dark yellowish brown (10YR 4/4) mottles and considerable dark gray (10YR 3/1) organic staining; strong very fine subangular blocky; firm; plentiful grass roots; some small worm holes; medium acid; clear smooth boundary; 3 inches thick.
B21	14 to 21 inches. Dark grayish brown (10YR 4/2) silty clay loam; few fine faint dark brown (10YR 4/3) and very few fine distinct reddish brown (5YR 4/4) mottles; thick continuous very dark gray (10YR 3/1) clay skins; strong fine and medium angular blocky; firm; few grass roots; neutral reaction; gradual smooth boundary; 7 inches thick.
B22	21 to 37 inches. Grayish brown (10YR 5/2) silty clay; few fine faint yellowish brown and dark yellowish brown (10YR 5/8 and 4/4) mottles; weak fine angular blocky; firm; few grass roots; some dark oxide concretions less than 2 mm. dia.; neutral reaction; clear smooth boundary; 16 inches thick.
B3	37 to 48 inches. Grayish brown (10YR 5/2) silty clay loam; very weak medium subangular blocky; firm; very few grass roots; abundant massive black oxide stains and concretions; reduction occurring in old root channels; mildly alkaline; gradual smooth boundary; 11 inches thick.
C	48 to 60 inches plus. Grayish brown (10YR 5/2) silt loam; strong brown (7.5YR 5/8) stains and mottles; very weak coarse subangular blocky; firm; vesicular; dark gray (10YR 4/1) clay in old root channels and along some cleavage planes; dark oxide concretions; neutral reaction; depth unknown, sampling done only to 60".

Remarks: Colors are for moist soil; reaction measured with Soiltex and reported as per Soil Survey Manual, p. 235.

GRUNDY SILT LOAM (24,01,C,a)

```
      WEIGHT  PERCENT  AND  VOLUME  PERCENT  OF  WATER  RETAINED

IDENTIFICATION        T E N S I O N S  (BARS)
                                                                      BD       TP     K
24   1   2   1      .1        .3        .6        3.        15.      G/CC     PCT   IN/HR

     DEPTH                                                              2
      0            32.24     30.61     27.16     26.47     22.14     1.34     49.43
                   43.20     41.01     36.39     35.46     29.66
                   FRAGMENT                          SIEVED 20.44ROCK PERCENT  3.44
                                                                        1
      7            34.62     29.58     26.21     25.29     15.77     1.41     46.79   .36
                   48.81     41.70     36.95     35.65     22.23     1.49     43.77   .35
                   FRAGMENT 27.78                    SIEVED 17.59ROCK PERCENT   .31
                                                                        1
     11            36.10     32.56     29.75     28.06     20.23     1.33     49.81  2.29
                   48.01     43.30     39.56     37.31     26.90     1.55     41.51  2.36
                   FRAGMENT 31.49                    SIEVED 16.20ROCK PERCENT 30.50
                                                                        1
     14            44.44     36.87     35.91     35.27     27.27     1.27     52.08  1.78
                   56.43     46.82     45.60     44.79     34.63     1.86     29.81   .26
                   FRAGMENT 37.91                    SIEVED 21.20ROCK PERCENT  8.27
                                                                        1
     21            38.48     36.10     33.23     30.86     18.72     1.28     51.70   .41
                   49.25     46.20     42.53     39.50     23.96     1.52     42.64   0
                   FRAGMENT 33.52                    SIEVED 18.79ROCK PERCENT 12.05
                                                                        1
     37            34.44     32.03     29.89     25.88     23.32     1.30     50.94   .03
                   44.77     41.63     38.85     33.64     30.31     1.50     43.40   0
                   FRAGMENT 30.73                    SIEVED 23.92ROCK PERCENT  1.49

      1=FIST
      2=CORE
      3=LOOSE
```

GRUNDY SILT LOAM (24,01,C,b)

Location: Bethany watershed; E½ SE¼ NW¼ Sec. 21, T63N R29W.
Vegetation and land use: Alfalfa
Topography: Crest of upland divide, 2 percent slope
Drainage: Moderately slow
Parent Material: Glacial till
Described and sampled by: J. Wiley Scott and G. A. Schumaker

Horizon	Description
Ap	0 to 6 inches. Black (10YR 2/1) silt loam; very dark brown (10YR 2/2) crushed; strong fine granular; very friable; plentiful grass roots; medium acid; clear smooth boundary; 6 inches thick.
A1	6 to 9 inches. Black (10YR 2/1) silt loam; very dark brown (10YR 2/2) crushed; moderate fine and very fine granular; friable; plentiful grass roots; slightly vesicular; slightly acid; clear smooth boundary; 3 inches thick.
B1	9 to 13 inches. Dark grayish brown (10YR 4/2) silty clay loam; few fine faint dark yellowish brown (10YR 4/4) mottles; some very dark gray (10YR 3/1) organic stains; strong fine subangular blocky; firm; plentiful grass roots; krotovinas and worm holes; slightly acid; clear smooth boundary; 4 inches thick.
B21	13 to 20 inches. Dark grayish brown (10YR 4/2) silty clay; few fine faint dark brown (10YR 4/3) and few fine distinct reddish brown (5YR 4/4) mottles; strong fine angular blocky; firm; thick continuous very dark brown (10YR 3/1) clay skins; few grass roots; some dark oxide concretions; neutral reaction; gradual smooth boundary; 7 inches thick.
B22	20 to 31 inches. Grayish brown (10YR 5/2) silty clay; common fine faint yellowish brown and strong brown (10YR 5/6 and 7.5YR 5/6) mottles; weak fine angular blocky; firm; thin discontinuous dark gray (10YR 4/1) clay skins; several small dark oxide concretions ranging up to 2 mm. in dia.; neutral reaction; gradual smooth boundary; 11 inches thick.
B3	31 to 36 inches plus. Grayish brown (10YR 5/2) silty clay loam; common fine faint dark yellowish brown (10YR 4/4) mottles; weak fine subangular blocky; firm; very few grass roots; abundant dark oxide concretions ranging to about 4 mm. in dia.; mildly alkaline; thickness not determined, sampling done only to 36 inches.

Remarks: Colors are for moist soil; reaction measured with Soiltex and reported as per Soil Survey Manual, p. 235.

BETHANY, MISSOURI

GRUNDY SILT LOAM (24,01,C,b)

WEIGHT PERCENT AND VOLUME PERCENT OF WATER RETAINED

IDENTIFICATION	TENSIONS (BARS)							
24 1 2 2	.1	.3	.6	3.	15.	BD G/CC	TP PCT	K IN/HR
DEPTH						2		
0	36.25	33.64	29.41	28.38	15.29	1.26	52.45	
	45.67	42.38	37.05	35.75	19.26			
	FRAGMENT			SIEVED	11.69ROCK	PERCENT		
						1		
9	36.45	31.87	29.69	27.27	17.29	1.35	49.06	2.18
	49.20	43.02	40.08	36.81	23.34	1.49	43.77	2.27
	FRAGMENT	30.37		SIEVED	16.42ROCK	PERCENT	6.31	
						1		
13	44.26	43.09	38.31	36.42	27.16	1.23	53.58	.43
	54.43	53.00	47.12	44.79	33.40	1.84	30.57	.27
	FRAGMENT	40.29		SIEVED	23.00ROCK	PERCENT	9.76	
					(27.88)	1		
20	40.47	37.30	35.86	31.70	23.68	1.27	52.08	.26
	51.39	47.37	45.54	40.25	30.07	1.80	32.08	.09
	FRAGMENT	36.58		SIEVED	25.55ROCK	PERCENT	.76	
						1		
31	34.29	28.96	26.44	25.92	21.09	1.37	48.30	0
	46.97	39.67	36.22	35.51	28.89	1.72	35.09	
	FRAGMENT	26.35		SIEVED	23.42ROCK	PERCENT		

1=FIST
2=CORE
3=LOOSE

SHELBY LOAM, severely eroded (24,03,P,a)

Location: Bethany watershed; W¼ SE¼ NE¼ Sec. 21 T63N R29W; Field G
Vegetation and land use: Permanent pasture
Topography: Upland, 13 percent slope
Drainage: Moderate to moderately slow
Parent Material: Glacial till
Described and sampled by: J. Wiley Scott and G. A. Schumaker

Horizon	Description
B1	0 to 6 inches. Mottled dark grayish brown and dark yellowish brown (10YR 4/2 and 4/4) clay loam; few fine faint yellowish brown (10YR 5/4) and few fine distinct yellowish red (5YR 5/8) mottles; moderate very fine subangular blocky; firm; very sticky; plentiful grass roots; medium acid; clear smooth boundary; 6 inches thick.
B2	6 to 12 inches. Mottled dark yellowish brown, yellowish brown, and pale brown (10YR 4/4, 5/4 and 6/3) clay; few fine faint strong brown (7.5YR 5/6) mottles; strong medium angular blocky; firm to very firm; plastic; discontinuous grayish brown (10YR 5/2) clay skins; few grass roots; organic stains on ped faces and in vertical streaks; neutral reaction; clear smooth boundary; 6 inches thick.
B3	12 to 18 inches. Mottled dark yellowish brown and yellowish brown (10YR 4/4 and 5/4) heavy clay loam; weak medium angular blocky; firm; plastic; few grass roots; thin patchy grayish brown (2.5Y 5/2) clay skins; massive streaks of dark oxide stains and some concretions ranging to 2 mm. dia.; moderately alkaline; gradual smooth boundary; 6 inches thick.
C1	18 to 28 inches. Grayish brown (10YR 5/2) clay loam; common fine distinct light brownish gray (2.5Y 6/2) clay occurring as vertical streaks; weak medium and coarse subangular blocky; firm; plastic; old root channels evident; common medium prominent very dark brown (10YR 2/2) oxide stains and soft concretions; occasional CO_3 concretions; strongly alkaline; gradual smooth boundary; 10 inches thick.
C2	28 to 32 inches plus. Mottled light brownish gray and yellowish brown (2.5Y 6/2) and (10YR 5/4) clay loam; weak coarse subangular blocky; firm; plastic; few fine prominent very dark brown (10YR 2/2) stains of oxides; abundant pockets and streaks of chalky and hard concretionary CO_3; strongly alkaline; thickness unknown, sampled only to 32 inches.

Remarks: Colors for moist soil; reaction measured with Soiltex and reported as per Soil Survey Manual, p. 235.

Glacial gravels throughout the profile.

SHELBY LOAM, severely eroded (24,03,P,a)

```
     WEIGHT  PERCENT  AND  VOLUME  PERCENT  OF  WATER  RETAINED

IDENTIFICATION        T E N S I O N S  (BARS)
                                                                BD        TP      K
24   3   1   1      .1         .3         .6        3.        15.        G/CC      PCT    IN/HR

      DEPTH                                                           2
        0           32.40      28.83      27.45     25.46     19.26     1.39      47.55
                    45.03      40.07      38.15     35.38     26.77
                    FRAGMENT                         SIEVED 18.09ROCK PERCENT   6.46
                                                                       1
        6           31.80      26.86      25.37     21.92     13.19     1.50      43.40   1.94
                    47.70      40.29      38.05     32.88     19.78     1.83      30.94   1.30
                    FRAGMENT 25.63                   SIEVED  5.25ROCK PERCENT   6.67
                                                           (24.63)     1
       12           25.59      23.60      22.79     19.29     15.93     1.55      41.51   1.47
                    39.66      36.58      35.32     29.89     24.69     1.84      30.57    .02
                    FRAGMENT 22.83                   SIEVED 13.02ROCK PERCENT   3.76
                                                                       1
       18           23.61      21.01      20.45     18.21     13.95     1.66      37.36    0
                    39.19      34.87      33.94     30.22     23.15     1.83      30.94
                    FRAGMENT 20.98                   SIEVED 12.87ROCK PERCENT  14.61

     1=FIST
     2=CORE
     3=LOOSE
```

SHELBY LOAM, moderately eroded phase (24,03,P,b)

Location: Bethany watershed, E½ SW¼ SE¼ Sec. 16, T63N, R29W; Pasture B
Vegetation and land use: Permanent pasture
Topography: Upland, I2 percent slope
Drainage: Moderate to moderately rapid
Parent Material: Glacial till
Described and sampled by: J. Wiley Scott and G. A. Schumaker

Horizon	Description
Ap	0 to 8 inches. Black (10YR 2/1) loam; peds or aggregates of dark brown (10YR 4/3) subsoil mixed with surface; moderate fine granular; friable; plentiful grass roots; moderately acid; clear smooth boundary; 8 inches thick.
B1	8 to 15 inches. Dark brown (10YR 4/3) light clay loam; few fine faint yellowish brown (10YR 5/6) and approximately 20 percent of mass is black (10YR 2/1) organic staining from surface; moderate very fine subangular blocky; firm; few grass roots; krotovinas filled with black (10YR 2/1) loam; moderately acid; clear smooth boundary; 7 inches thick.
B2	15 to 21 inches. Dark yellowish brown (10YR 4/4) heavy clay loam; moderate fine angular blocky; firm; few grass roots; continuous dark yellowish brown (10YR 3/4) clay skins; slightly acid; gradual smooth boundary; 6 inches thick.
B3	21 to 28 inches. Dark yellowish brown (10YR 4/4) clay loam; weak medium subangular blocky; firm; very few grass roots; discontinuous brown and light brownish gray (10YR 5/3 and 6/2) clay skins; few small dark oxide concretions; moderately alkaline; clear wavy boundary; 7-11 inches thick.
C	28 to 49 inches. Yellowish brown (10YR 5/6) clay loam; light weak brownish gray and grayish brown (10YR 6/2 and 5/2) along cleavage faces; coarse subangular blocky; firm; plastic; occasional root and root channel; vesicular; very dark brown (10YR 2/2) oxide staining; abundant chalky and concretionary CO_3; moderately alkaline; depth unknown, sampling done only to 49 inches.

Remarks: Colors are for moist soil; reaction measured with Soiltex and reported as per Soil Survey Manual, p. 235.

Occasional glacial gravel 1½ inches dia. throughout profile. Texture of B2 may be clay.

SHELBY LOAM, moderately eroded phase (24,03,P,b)

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      WEIGHT  PERCENT  AND  VOLUME  PERCENT  OF  WATER  RETAINED

IDENTIFICATION         T E N S I O N S  (BARS)
                                                                  BD       TP       K
24   3   1   2       .1        .3        .6        3.        15.       G/CC     PCT    IN/HR

     DEPTH                                                             1
      0              36.65     29.41     27.62     24.39     17.22     1.34     49.43   1.22
                     49.11     39.40     37.01     32.68     23.07     1.58     40.38   8.42
                     FRAGMENT  29.35                SIEVED 17.29ROCK PERCENT   6.51
                                                                       1
      8              27.37     25.22     24.40     21.17     16.61     1.38     47.92   1.28
                     37.77     34.80     33.67     29.21     22.92     1.62     38.87   1.39
                     FRAGMENT  25.58                SIEVED 20.75ROCK PERCENT  32.62
                                                                       1
     15              28.75     24.29     23.52     20.58     15.96     1.44     45.66    .76
                     41.40     34.97     33.86     29.63     22.98     1.66     37.36    .88
                     FRAGMENT  22.59                SIEVED 21.47ROCK PERCENT  16.06
                                                                       1
     21              24.48     21.58     20.79     17.88     14.83     1.43     46.04    .55
                     35.00     30.85     29.72     25.56     21.20     1.59     40.00   3.66
                     FRAGMENT  21.34                SIEVED 21.87ROCK PERCENT  48.24
                                                                       1
     28              20.33     19.08     17.15     15.00     13.04     1.73     34.72    .16
                     35.17     33.00     29.66     25.95     22.55     1.90     28.30    .26
                     FRAGMENT  18.87                SIEVED 11.29ROCK PERCENT   5.81

      1=FIST
      2=CORE
      3=LOOSE
```

JUDSON SILT LOAM (24,04,P,a and b)

Location: Bethany watershed; pit a E¼ SW¼ NE ¼ Sec. 21 T63N R29W, pit b W¼ E½ SW¼ SE¼ Sec. 16, T63N R29W.
Vegetation and land use: Permanent pasture
Topography: Toe-slope in upland cove; pit a 3 percent slope, pit b 7 percent slope.
Drainage: Moderate
Parent Material: Outwash from loess and glacial till.
Described and sampled by: J. Wiley Scott and G. A. Schumaker

Horizon	Description
Pit a[1]	
A1	0 to 13 inches. Black (10YR 2/1) silt loam; weak fine granular; very friable; abundant grass roots, some worm channels; sand lenses near lower boundary; slightly acid; clear smooth boundary; 13 inches thick.
AC	13 to 22 inches. Black (10YR 2/1) silt loam; common fine distinct dark reddish brown (5YR 2/2) mottles and common medium distinct very dark grayish brown (10YR 3/2) lenses and horizontal streaks; moderate thin platy breaking to moderate fine granular; friable; abundant grass roots; vesicular; medium acid; gradual smooth boundary; 9 inches thick.
C	22 to 36 inches plus. Black (10YR 2/1) silt loam; common fine distinct dark reddish brown (5YR 2/2) mottles; structureless; friable; plentiful grass roots in upper part and decreasing with depth; slightly vesicular; occasional lens of dark grayish brown (10YR 4/2) silty material; medium acid; thickness not determined, encountered ground water at 36 inches.
Pit b[2]	
A1	0 to 12 inches. Black (10YR 2/1) silt loam; strong fine and very fine granular; friable; abundant grass roots; krotovina and abundant worm casts and holes; medium acid; glacial smooth boundary; 12 inches thick.
AC	12 to 26 inches plus. Black (10YR 2/1) silt loam; weak fine subangular breaking to moderate fine granular; friable; plentiful grass roots; some worm casts and holes; medium acid; thickness not determined, encountered ground water at 26 inches.

Remarks: Colors are for moist soil; reaction measured with Soiltex and reported as per Soil Survey Manual, p. 235.

[1] Some fine sand throughout the profile. Estimated 25 percent clay in A1.

[2] Some sand throughout the profile. Estimated 24 percent clay in A1 and greater than 26 percent in AC.

JUDSON SILT LOAM (24,04,P,a and b)

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      WEIGHT  PERCENT  AND  VOLUME  PERCENT  OF  WATER  RETAINED

IDENTIFICATION         T E N S I O N S  (BARS)
                                                                  BD       TP      K
24    4    1    1    .1        .3        .6        3.        15.      G/CC     PCT   IN/HR

      DEPTH                                                           2
       0             32.36     26.81     24.82     22.45     14.69    1.33     49.81
                     43.03     35.65     33.01     29.85     19.53
                     FRAGMENT                        SIEVED 13.60ROCK PERCENT   8.51
                                                                      1
        13           36.13     31.99     27.68     24.34     14.24    1.39     47.55   6.34
                     50.22     44.46     38.47     33.83     19.79    1.43     46.04   1.28
                     FRAGMENT 29.21                  SIEVED 14.41ROCK PERCENT   7.61
                                                                      1
        22           34.21     30.06     27.89     25.66     15.57    1.38     47.92    .64
                     47.20     41.48     38.48     35.41     21.48    1.50     43.40    .72
                     FRAGMENT 28.62                  SIEVED 14.61ROCK PERCENT   8.39

IDENTIFICATION         T E N S I O N S  (BARS)
                                                                  BD       TP      K
24    4    1    2    .1        .3        .6        3.        15.      G/CC     PCT   IN/HR

      DEPTH                                                           2
       0             33.05     28.96     28.07     24.59     16.08    1.36     48.68
                     44.94     39.38     38.17     33.44     21.86
                     FRAGMENT                        SIEVED 12.28ROCK PERCENT
                                                                      1
        12           29.31     24.81     23.72     20.89     14.02    1.41     46.79  14.57
                     41.32     34.98     33.44     29.45     19.76    1.56     41.13   7.32
                     FRAGMENT 22.91                  SIEVED 15.74ROCK PERCENT   7.69

        1=FIST
        2=CORE
        3=LOOSE
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KEENE SILT LOAM (26,01,C,a)

Location: 50' S of farm lane and 70' W of lysimeter battery, SE¼, SE¼, SE¼, Sec. 25, Crawford Twp., ARS Hydrologic Exp. Sta., Coshocton Co.
Vegetation and land use: Meadow crop
Topography: Rolling upland, ridgetop, 4 percent slope (elev. 1127)
Drainage: Moderately well
Parent Material: Gray clay shale, Allegheny Series, Pennsylvanian System
Described and sampled by: G. E. Kelley and G. P. Lawless

Horizon	Description
Ap	0 to 9 inches. Dark grayish brown (10YR 4/2) silt loam, weak fine subangular blocky structure, friable, roots abundant, moderately rapid permeability, less than 5 percent coarse material between 2mm and 3 inches in diameter, pH 6.6, abrupt smooth boundary.
A2	9 to 12 inches. Yellowish brown (10YR 5/4) silt loam, weak fine and medium subangular blocky structure, friable, roots common, very porous, moderate permeability, less than 2 percent coarse material between 2mm and 3 inches in diameter, pH 5.4, clear smooth boundary.
B1	12 to 15 inches. Yellowish brown (10YR 5/6) silt loam, weak fine and medium subangular blocky structure, friable, roots common, many small pores in ped interiors, thin very patchy yellowish brown (10YR 5/4) silt-clay films on vertical and horizontal ped surfaces, moderate permeability, less than 2 percent coarse material between 2mm and 3 inches in diameter, pH 5.2, clear smooth boundary.
B21t	15 to 20 inches. Yellowish brown (10YR 5/6) heavy silt loam, moderate medium subangular blocky structure, friable, roots common, thin patchy dark yellowish brown (10YR 4/4) clay films on vertical and horizontal ped surfaces; moderate permeability, less than 2 percent coarse material between 2mm and 3 inches in diameter, pH 5.2, clear smooth boundary.
B22t	20 to 25 inches. Yellowish brown (10YR 5/6) silty clay loam with many medium distinct pale brown (10YR 6/3) mottles, moderate medium subangular blocky structure, friable, roots common, thin patchy dark yellowish brown (10YR 4/4) clay films on vertical and horizontal ped surfaces, moderate permeability, 5 percent coarse material less than 6 inches in diameter, some degradation noted, pH 5.0, clear smooth boundary.
IIB23g*	25 to 39 inches. Mixed yellowish brown (10YR 5/4) and gray to light gray (5Y 6/1) silty clay with many medium prominent strong brown (7.5YR 5/8) and common fine distinct light brownish gray (10YR 6/2) mottles, weak coarse prismatic breaking to moderate medium angular blocky structure, firm, roots occasional, moderate patchy pale brown (10YR 6/3) clay films on vertical and horizontal ped surfaces, very slow permeability, 10 percent coarse material less than 6 inches in dia.; pH 4.8, gradual smooth boundary.
IIB3g	39 to 52 inches. Gray to light gray (10YR 6/1) light silty clay with few fine prominent strong brown (7.5YR 5/8) mottles, weak medium angular and subangular blocky structure, very firm, thin patchy pale brown (10YR 6/3) clay films on vertical ped surfaces, very slow permeability, 25 percent coarse material less than 6 inches in diameter, pH 4.8, gradual boundary.
IICg	52 to 60 inches plus. Gray (10YR 5/1) silty clay loam with streaks of yellowish brown (10YR 5/8) partially weathered shale, massive, 35 percent coarse material less than 6 inches in diameter, pH 4.8.

Remarks: This site was sampled jointly by ARS for hydrologic studies and by SCS for soil characterization. Soil conditions were moist. Texture, permeability, and stone content by volume were estimated in the field; stones measured on long axis, pH by colorimetric field indicators. The weather was very cool and cloudy.

*Horizon of least permeability.

KEENE SILT LOAM (26,01,C,a)

```
      WEIGHT  PERCENT  AND  VOLUME  PERCENT  OF  WATER  RETAINED

IDENTIFICATION        T E N S I O N S  (BARS)
                                                                     BD        TP       K
26   1   2   1     .1        .3        .6        3.        15.       G/CC      PCT     IN/HR

     DEPTH                                                            1
      0            32.90     29.96     28.75     25.90     6.64      1.31      50.57    1.02
                   43.09     39.24     37.66     33.92     8.69      1.35      49.06     .94
                   FRAGMENT  27.89                SIEVED   7.76ROCK  PERCENT   7.67
                                                                      1
      9            28.41     25.51     24.78     23.52     13.10     1.32      50.19     .29
                   37.50     33.67     32.70     31.04     17.29     1.37      48.30     .36
                   FRAGMENT  25.41                SIEVED   9.42ROCK  PERCENT
                                                                      1
     12            27.23     25.40     24.72     22.85     14.99     1.49      43.77     .43
                   40.57     37.84     36.83     34.04     22.33     1.58      40.38     .42
                   FRAGMENT  24.42                SIEVED  19.81ROCK  PERCENT  34.26
                                                                      1
     15            27.41     27.03     25.19     23.88     13.77     1.41      46.79    1.00
                   38.64     38.11     35.51     33.67     19.41     1.54      41.89     .56
                   FRAGMENT  27.78                SIEVED  16.21ROCK  PERCENT  13.94
                                                                      1
     20            27.19     24.37     23.23     22.36     14.67     1.55      41.51     .34
                   42.14     37.77     36.00     34.65     22.73     1.66      37.36     .11
                   FRAGMENT  24.14                SIEVED  15.78ROCK  PERCENT  12.71
                                                                      1
     25            24.52     21.53     19.99     18.62     14.68     1.60      39.62     .04
                   39.23     34.44     31.98     29.79     23.48     1.75      33.96     .03
                   FRAGMENT  20.24                SIEVED  14.43ROCK  PERCENT  36.24
                                                                      1
     39            21.63     18.77     17.09     14.88     10.56     1.70      35.85     0
                   36.77     31.90     29.05     25.29     17.95     1.84      30.57
                   FRAGMENT  18.37                SIEVED  12.54ROCK  PERCENT  28.26

      1=FIST
      2=CORE
      3=LOOSE
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KEENE SILT LOAM (26,01,C,b)

Location: 45' N of farm lane and 70' W of electric pole, SE¼, SE¼, SE¼, Sec. 25, Crawford Twp., ARS Hydrologic Exp. Sta., Coshocton Co.
Vegetation and land use: Meadow crop
Topography: Rolling upland, ridgetop, 3 percent slope (elev. 1131)
Drainage: Moderately well drained
Parent Material: Gray clay shale, Allegheny Series, Pennsylvanian System
Described and sampled by: G. E. Kelley and G. P. Lawless

Horizon	Description
Ap	0 to 8 inches. Brown to dark brown (10YR 4/3) silt loam, weak fine subangular blocky structure, friable, roots abundant, moderately rapid permeability, less than 5 percent coarse material between 2mm and 3 inches in diameter, pH 6.6, abrupt smooth boundary.
B1	8 to 13 inches. Yellowish brown (10YR 5/6) heavy silt loam, weak fine and medium subangular blocky structure, friable, roots common, thin very patchy yellowish brown (10YR 5/4) silt-clay films on vertical and horizontal ped surfaces, interiors of peds are very porous, moderate permeability, less than 2 percent coarse material between 2mm and 3 inches in diameter, pH 5.6, clear smooth boundary.
B21t	13 to 19 inches. Yellowish brown (10YR 5/6) heavy silt loam, moderate medium subangular blocky structure, friable, roots common, thin patchy yellowish brown (10YR 5/4) clay films on vertical and horizontal ped surfaces, moderate permeability, less than 2 percent coarse material between 2mm and 3 inches in diameter, pH 5.4, clear smooth boundary.
B22t	19 to 22 inches. Yellowish brown (10YR 5/6) silty clay loam with many (40 percent of ped surfaces) medium distinct pale brown (10YR 6/3) mottles, moderate medium subangular blocky structure, friable, roots common, thin patchy light yellowish brown (10YR 6/4) clay films on vertical and horizontal ped surfaces, moderately slow permeability, 10 percent coarse material less than 6 inches in diameter, pH 5.4, clear smooth boundary.
IIB23t*	22 to 30 inches. Yellowish brown (10YR 5/6) clay with many (30 percent of ped surfaces) medium distinct pale brown (10YR 6/3) and few fine and medium prominent strong brown (7.5YR 5/8) and gray to light gray (5Y 6/1) mottles, weak medium and coarse prismatic breaking to moderate medium angular and subangular blocky structure, firm, roots occasional, moderate patchy light yellowish brown (10YR 6/4) clay films on vertical and horizontal ped surfaces, very slow permeability, 25 percent coarse material less than 6 in. in diameter, pH 5.0, gradual boundary.
IIB24g	30 to 43 inches. Light olive gray (5Y 6/2) silty clay with common medium faint gray to light gray (5Y 6/1) and common fine prominent yellowish brown (10YR 5/6) mottles, moderate medium angular blocky structure, very firm, roots occasional, moderate patchy pale brown (10YR 6/3) clay films on vertical and horizontal ped surfaces, very slow permeability, 15 percent coarse material less than 6 in. in diameter, pH 5.0, gradual boundary.
IIB3g	43 to 51 inches. Light olive gray (5Y 6/2) silty clay loam with common medium faint gray to light gray (5Y 6/1) mottles, weak medium angular and subangular blocky structure, very firm, roots occasional, thin very patchy pale brown (10YR 6/3) clay films on vertical and horizontal ped surfaces, many dark concretions, very slow permeability, 30 percent coarse material less than 6 inches in diameter, pH 5.0, gradual boundary.
IICg	51 to 60 inches plus. Olive gray (5Y 5/2) silty clay loam, massive, 35 percent coarse material less than 6 inches in diameter, many dark concretions, pH 5.0.

Remarks: This site was sampled jointly by ARS for hydrologic studies and by SCS for soil characterization. Soil conditions were moist. Texture, permeability, and stone content by volume were estimated in the field; stones measured on long axis; pH by colorimetric field indicators. The weather was very cool and cloudy.

*Horizon of least permeability.

KEENE SILT LOAM (26,01,C,b)

```
      WEIGHT  PERCENT  AND  VOLUME  PERCENT  OF  WATER  RETAINED

IDENTIFICATION        T E N S I O N S  (BARS)
                                                                   BD        TP       K
26    1    2    2     .1         .3         .6         3.         15.        G/CC      PCT     IN/HR

      DEPTH                                                                    1
       0              35.54      31.49      30.04      27.69       9.54      1.39     47.55     .26
                      49.40      43.77      41.75      38.48      13.26      1.47     44.53    1.11
                      FRAGMENT   30.54                   SIEVED    9.23ROCK  PERCENT  16.94
                                                                                1
       8              25.22      24.53      23.92      21.73      15.73      1.48     44.15     .49
                      37.32      36.30      35.40      32.16      23.28      1.56     41.13     .31
                      FRAGMENT   22.54                   SIEVED   21.91ROCK  PERCENT  18.79
                                                                                1
      13              25.79      24.27      23.62      21.09      14.28      1.42     46.42     .84
                      36.62      34.46      33.54      29.94      20.27      1.51     43.02     .56
                      FRAGMENT   24.72                   SIEVED   23.06ROCK  PERCENT  43.14
                                                                                1
      19              24.44      22.72      21.38      20.86      15.25      1.56     41.13     .63
                      38.12      35.44      33.35      32.54      23.79      1.68     36.60     .51
                      FRAGMENT   21.52                   SIEVED   16.47ROCK  PERCENT  17.19
                                                                                1
      22              24.29      22.90      22.41      19.37      16.42      1.59     40.00     .14
                      38.62      36.41      35.63      30.79      26.10      1.74     34.34     .10
                      FRAGMENT   21.16                   SIEVED   18.50ROCK  PERCENT   8.21
                                                                                3
      26              23.77      22.67      20.92      20.83      14.09      1.68     36.60
                      39.93      38.08      35.14      34.99      23.67
                      FRAGMENT                           SIEVED   13.80ROCK  PERCENT   2.37
                                                                                1
      30              19.93      16.83      16.15      14.23       9.91      1.68     36.60     .05
                      33.48      28.27      27.13      23.90      16.64      1.88     29.06     .12
                      FRAGMENT   16.92                   SIEVED   13.38ROCK  PERCENT  44.20

       1=FIST
       2=CORE
       3=LOOSE
```

KEENE SILT LOAM (26,01,F,a)

Location: 25' E of lane and 35' N of CS-18, SE¼ SW¼ NW¼ Sec. 5, White Eyes Twp., ARS Hydrologic Experiment Station, Coshocton County, Ohio.
Vegetation and land use: Forest; red and white oak.
Topography: Rolling upland, 23 percent slope (elev. 1060)
Drainage: Moderately well.
Parent Material: Gray clay shale, Allegheny Series, Pennsylvanian System.
Described and sampled by: G. E. Kelley and G. P. Lawless.

Horizon	Description
01	1½ to ½ inches. Deciduous leaf litter.
02	½ to 0 inches. Organic material decomposed beyond recognition.
A1	0 to 3 inches. Very dark grayish brown (10YR 3/2) silt loam, moderate fine granular structure, friable, roots abundant, moderately rapid permeability, less than 5% coarse material between 2mm and 6 in. in diam., pH 4.6, clear wavy boundary.
A2	3 to 10 inches. Yellowish brown (10YR 5/4) silt loam with fingers of dark grayish brown (10YR 4/2), weak medium and fine subangular blocky structure, friable, roots abundant, many small pores, moderately rapid permeability, less than 5% coarse material between 2mm and 6 in. in diam., pH 4.8, clear smooth boundary.
B1	10 to 15 inches. Yellowish brown (10YR 5/4) heavy silt loam, weak fine and medium subangular blocky structure, friable, roots abundant, many pores in ped interiors, thin very patchy light yellowish brown (10YR 6/4) silt-clay films on vertical and horizontal ped surfaces, moderate permeability, less than 5% coarse material between 2mm and 6 in. in diam., pH 4.8, clear smooth boundary.
B21t	15 to 21 inches. Yellowish brown (10YR 5/6) light silty clay loam, moderate medium subangular blocky structure, friable, roots common, thin patchy light yellowish brown (10YR 6/4) clay films on vertical and horizontal ped surfaces, moderate permeability, 15% coarse material less than 8 in. in diam., pH 5.0, clear smooth boundary.
IIB22g	21 to 27 inches. Yellowish brown (10YR 5/6) heavy silty clay loam with many (50% of ped surfaces) coarse prominent light brownish gray (2.5Y 6/2) and common fine distinct strong brown (7.5YR 5/6) mottles, moderate fine and medium angular and subangular blocky structures, firm, roots common, thin patchy light yellowish brown (10YR 6/4) clay films on vertical and horizontal ped surfaces, slow permeability, 15% coarse material less than 3 in. in diam., pH 5.0, clear smooth boundary.
IIB23g*	27 to 40 inches. Strong brown (7.5YR 5/6) heavy silty clay loam to silty clay with many (50% of ped surfaces) coarse prominent light gray to gray (5Y 6/1) mottles, moderate medium angular and subangular blocky structures, firm,roots occasional, thin patchy light yellowish brown (10YR 6/4) clay films on vertical and horizontal ped surfaces, very slow permeability, 15% coarse material less than 3 in. in diam., pH 5.0, gradual boundary.
IIIB3	40 to 52 inches. Dark grayish brown (10YR 4/2) silty clay loam with few fine distinct yellowish brown (10YR 5/6) and light brownish gray (10YR 6/2) mottles, weak coarse platy breaking to weak fine and medium angular and subangular blocky structure, very firm and compact, roots occasional, thin patchy light yellowish brown (10YR 6/4) clay films on vertical and horizontal ped surfaces, very slow permeability, 20% coarse material less than 3" in diam., pH 5.0, abrupt smooth boundary.
IVCg	52 to 72 inches plus. Light gray (N7/0) clay with common medium prominent red (2.5YR 5/8) and few fine distinct brownish yellow (10YR 6/8) mottles, massive with slickensides, faces of slickensides are brown (10YR 5/3) grading to light brownish gray (2.5Y 6/2) below 62 in., roots occasional, very slow permeability, 10% coarse material less than 3" in diam., pH 5.0.

Remarks: This site was sampled jointly by ARS for hydrologic studies and by SCS for soil characterization. Soil conditions were moist. Texture, permeability, and stone content by volume were estimated in the field; stones measured on long axis; pH by colorimetric field indicators. The weather was cloudy and cold.

*Horizon of least permeability.

KEENE SILT LOAM (26,01,F,a)

```
          WEIGHT  PERCENT  AND  VOLUME  PERCENT  OF  WATER  RETAINED

IDENTIFICATION          T E N S I O N S  (BARS)
                                                                BD      TP      K
26   1   3   1    .1       .3       .6       3.       15.       G/CC    PCT     IN/HR

     DEPTH                                                          3
       0          46.11    39.86    37.12    31.92    10.88      .79    70.19
                  36.42    31.48    29.32    25.21     8.59
                  FRAGMENT                     SIEVED 10.98ROCK PERCENT 31.01
                                                                    1
       3          26.31    24.87    22.55    21.13     7.19     1.57    40.75   .75
                  41.30    39.04    35.40    33.17    11.28     1.62    38.87   .71
                  FRAGMENT 23.18               SIEVED  6.95ROCK PERCENT 17.67
                                                                    1
      10          23.74    22.56    21.61    19.92    10.89     1.46    44.91   .45
                  34.66    32.93    31.55    29.08    15.89     1.59    40.00   .18
                  FRAGMENT 23.77               SIEVED 13.83ROCK PERCENT 15.29
                                                                    1
      15          25.72    23.72    22.83    21.61    15.21     1.52    42.64   .54
                  39.09    36.05    34.70    32.84    23.11     1.67    36.98   .42
                  FRAGMENT 21.85               SIEVED 21.62ROCK PERCENT 18.60
                                                     (15.86)        1
      21          24.89    23.57    21.49    18.38    15.01     1.61    39.25   .74
                  40.07    37.94    34.59    29.59    24.16     1.76    33.58   .28
                  FRAGMENT 22.47               SIEVED  6.67ROCK PERCENT  3.11
                                                     (16.01)        1
      27          24.19    23.30    20.35    20.20    14.67     1.58    40.38   .17
                  38.22    36.81    32.15    31.91    23.17     1.75    33.96   .07
                  FRAGMENT 22.88               SIEVED 13.79ROCK PERCENT  7.98
                                                                    1
      40          21.50    20.96    18.27    16.09    11.52     1.67    36.98   .06
                  35.90    35.00    30.51    26.87    19.23     1.76    33.58   .14
                  FRAGMENT 19.94               SIEVED 12.65ROCK PERCENT 19.52
                                                                    3
      52          20.54    18.95    15.46    13.52    11.57     1.50    43.40
                  30.81    28.42    23.19    20.28    17.35
                  FRAGMENT                     SIEVED 12.58ROCK PERCENT 47.78

        1=FIST
        2=CORE
        3=LOOSE
```

KEENE SILT LOAM (26,01,F,b)

Location: 30' S of lane and 10' N of watershed No. 132 boundary, SE¼ SW¼ NW¼ Sec. 5, White Eyes Twp., ARS Hydrologic Exp. Sta., Coshocton Co.
Vegetation and land use: Forest; red and white oak
Topography: Rolling upland, middle slope 22 percent (elev. 1060)
Drainage: Moderately well
Parent Material: Gray clay shale, Allegheny Series, Pennsylvanian System
Described and sampled by: G. E. Kelley and G. P. Lawless

Horizon	Drainage
01	1-1/2 to 1/2 inch. Deciduous leaf litter.
02	1/2 to 0 inch. Organic material decomposed beyond recognition.
A1	0 to 2 inches. Very dark grayish brown (10YR 3/2) silt loam, moderate fine granular structure, friable, roots abundant, moderately rapid permeability, less than 5% coarse material between 2mm and 6 inches in diameter, pH 4.8, clear wavy boundary.
A2	2 to 9 inches. Yellowish brown (10YR 5/4) silt loam, weak fine and medium subangular blocky structure, friable, roots abundant, many small pores, moderately rapid permeability, less than 5% coarse material between 2mm and 6 inches in diameter, pH 4.8, clear smooth boundary.
B1	9 to 15 inches. Yellowish brown (10YR 5/6) silt loam, weak fine and medium subangular blocky structure, friable, roots common, many pores in ped interiors, thin very patchy yellowish brown (10YR 5/4) silt-clay films on vertical and horizontal ped surfaces, moderate permeability, less than 5% coarse material between 2mm and 6 inches in diameter, pH 4.8, clear smooth boundary.
B21t	15 to 22 inches. Yellowish brown (10YR 5/6) heavy silt loam, moderate fine and medium subangular blocky structure, friable, roots common, thin patchy light yellowish brown (10YR 6/4) clay films on vertical and horizontal ped surfaces, moderate permeability, 10% coarse material less than 6 inches in diameter, pH 5.0, clear smooth boundary.
IIB22t	22 to 30 inches. Yellowish brown (10YR 5/6) heavy silty clay loam with common medium prominent yellowish red (5YR 4/8) and light olive gray (5Y 6/2) mottles, moderate fine and medium subangular and angular blocky structure, firm, roots common, thin patchy light yellowish brown (10YR 6/4) clay films on vertical and horizontal ped surfaces, slow permeability, 25% coarse material less than 3 inches in diameter, pH 5.0, gradual boundary.
IIB23g*	30 to 43 inches. Brown to dark brown (7.5YR 4/4) silty clay with many (50% of ped surfaces) coarse prominent light olive gray (5Y 6/2) and common medium distinct strong brown (7.5YR 5/8) mottles; weak coarse subangular and angular blocky structure, firm, roots occasional, thin patchy light yellowish brown (10YR 6/4) clay films on vertical and horizontal ped surfaces, very slow permeability, 15% coarse material less than 3 inches in diameter, pH 5.0, clear smooth boundary.
IIIB3	43 to 55 inches. Brown to dark brown (10YR 4/3) heavy silt loam with few fine distinct light brownish gray (10YR 6/2) and yellowish brown (10YR 5/8) mottles, weak fine and medium angular and subangular blocky structure, firm, roots occasional, thin very patchy light yellowish brown (10YR 6/4) clay films on vertical and horizontal ped surfaces, very slow permeability, 15% coarse material less than 3 inches in diameter, pH 5.0, abrupt smooth boundary.
IVCg	55 to 75 inches plus. Light gray (N 7/0) clay with common fine distinct brownish yellow (10YR 6/8) mottles, massive with slickensides, faces of slickensides are brown (10YR 5/3) grading to light brownish gray (2.5Y 6/2) below 65 inches, roots occasional, very slow permeability, 10% coarse material less than 3 inches in diameter, pH 5.0.

Remarks: This site was sampled jointly by ARS for hydrologic studies and by SCS for soil characterization. Soil conditions were moist. Texture, permeability, and stone content by volume were estimated in the field; stones measured on long axis, pH by colorimetric field indicators. The weather was cloudy and cold.

*Horizon of least permeability.

KEENE SILT LOAM (26,01,F,b)

WEIGHT PERCENT AND VOLUME PERCENT OF WATER RETAINED

IDENTIFICATION	TENSIONS (BARS)					BD	TP	K
26 1 3 2	.1	.3	.6	3.	15.	G/CC	PCT	IN/HR
DEPTH						3		
0	46.15	31.99	30.82	30.70	16.66	.81	69.43	
	37.38	25.91	24.96	24.86	13.49			
	FRAGMENT			SIEVED	12.12ROCK	PERCENT	22.14	
					(19.04)	1		
2	25.00	22.52	21.90	19.89	9.03	1.48	44.15	.51
	37.00	33.32	32.41	29.43	13.36	1.54	41.89	.11
	FRAGMENT	22.23		SIEVED	10.48ROCK	PERCENT	13.09	
						1		
9	29.84	27.07	23.91	22.28	13.85	1.46	44.91	.07
	43.56	39.52	34.90	32.52	20.22	1.54	41.89	.42
	FRAGMENT	25.44		SIEVED	15.81ROCK	PERCENT	11.17	
						1		
15	24.53	23.13	22.35	20.00	14.98	1.53	42.26	.36
	37.53	35.38	34.19	30.60	22.91	1.70	35.85	.28
	FRAGMENT	21.49		SIEVED	15.52ROCK	PERCENT	12.84	
						1		
22	26.14	25.00	23.82	20.15	14.70	1.59	40.00	.24
	41.56	39.75	37.87	32.03	23.37	1.77	33.21	0
	FRAGMENT	24.88		SIEVED	13.74ROCK	PERCENT	16.76	
						1		
30	24.37	23.52	20.35	18.00	14.42	1.62	38.87	0
	39.47	38.10	32.96	29.16	23.36	1.80	32.08	
	FRAGMENT	21.71		SIEVED	13.98ROCK	PERCENT	3.63	
						1		
43	22.16	20.73	17.59	15.56	12.11	1.66	37.36	.13
	36.78	34.41	29.19	25.82	20.10	1.77	33.21	.04
	FRAGMENT	19.40		SIEVED	11.95ROCK	PERCENT	6.49	
						3		
55	20.73	19.31	18.24	15.77	12.26	1.42	46.42	
	29.43	27.42	25.90	22.39	17.40			
	FRAGMENT			SIEVED	14.45ROCK	PERCENT	27.83	

1=FIST
2=CORE
3=LOOSE

LATHAM or CAVODE SILT LOAM (26,02,C,a)

Location: 170' S of Twp. Rd. 171d and 50' W of farm lane, SW¼ NW¼ Sec. 4, White Eyes Twp., ARS Hydrologic Exp. Sta., Coshocton Co.
Vegetation and land-use: Meadow crop
Topography: Rolling upland, upper slope 10 percent (elev. 1120)
Drainage: Moderately well to somewhat poorly
Parent Material: Gray clay shale, Allegheny Series, Pennsylvanian System
Described and sampled by: H. W. Black, G. E. Kelley, G. P. Lawless

Horizon	Description
Ap	0 to 7 inches. Brown to dark brown (10YR 4/3) silt loam, weak medium granular structure, friable, roots abundant, moderately rapid permeability, 5% coarse material less than 3 inches in diameter, pH 6.6, abrupt smooth boundary.
B1	7 to 10 inches. Yellowish brown (10YR 5/4) silt loam, weak fine and medium subangular blocky structure, friable, roots common, moderate permeability, less than 5% coarse material less than 3 inches in diameter, pH 5.8, clear smooth boundary.
B21t	10 to 14 inches. Yellowish brown (10YR 5/4) light silty clay loam, weak fine and medium subangular blocky structure, friable, roots common, thin patchy light yellowish brown (10YR 6/4) clay films on vertical and horizontal ped surfaces, moderate permeability, less than 5% coarse material less than 3 inches in diameter, pH 5.2, clear smooth boundary.
IIB22t	14 to 17 inches. Yellowish brown (10YR 5/4) heavy silty clay loam with many (30%) fine distinct strong brown (7.5YR 5/6) and common fine distinct light brownish gray (10YR 6/2) mottles, moderate medium subangular blocky structure, firm, roots occasional, thin patchy light yellowish brown (10YR 6/4) clay films on vertical and horizontal ped surfaces, moderately slow permeability, 15% coarse material less than 6 inches in diameter, pH 5.0, clear smooth boundary.
IIB23g*	17 to 27 inches. Yellowish brown (10YR 5/4) silty clay with many (80% of ped surfaces) coarse prominent light brownish gray (2.5Y 6/2) and common fine faint yellowish brown (10YR 5/8) mottles, weak medium and coarse prismatic breaking to weak coarse subangular blocky structure, firm, roots occasional, thin continuous light yellowish brown (10YR 6/4) clay films on vertical and horizontal ped surfaces, very slow permeability, many dark concretions, 10% coarse material less than 6 inches in diameter, pH 5.0, abrupt wavy boundary.
IIIB3	27 to 46 inches. Yellowish brown (10YR 5/4) heavy silt loam with few fine faint yellowish brown (10YR 5/8) mottles, weak coarse platy breaking to weak fine subangular blocky structure, very firm and compact, roots occasional, thin patchy light yellowish brown (10YR 6/4) clay films on vertical and horizontal ped surfaces, many dark concretions, very slow permeability, 20% coarse material less than 6 inches in diameter, pH 5.0, clear wavy boundary.
IIIC	46 to 58 inches plus. Yellowish brown (10YR 5/4) heavy silty clay loam with common medium distinct light brownish gray (2.5Y 6/2) and few fine faint yellowish brown (10YR 5/8) mottles, massive, 30% shale fragments up to 6 inches in diameter, pH 5.2.
	58 inches plus. Sampled but not described.

Remarks: This site was sampled jointly by ARS for hydrologic studies and by SCS for soil characterization. Soil conditions were moist. Texture, permeability, and stone content by volume were estimated in the field; stones measured on long axis, pH by colorimetric field indicators. The weather was very cold and cloudy. This site is a representative component of the Keene (shallow phase) soil previously mapped on the station.

*Horizon of least permeability.

LATHAM or CAVODE SILT LOAM (26,02,C,a)

```
        WEIGHT  PERCENT  AND  VOLUME  PERCENT  OF  WATER  RETAINED

IDENTIFICATION           T E N S I O N S  (BARS)
                                                                        BD        TP     K
26   2    2   1      .1        .3        .6        3.        15.       G/CC      PCT   IN/HR

     DEPTH                                                                 1
        0           28.15     26.06     24.01     19.17      9.56      1.46     44.91   .48
                    41.09     38.04     35.05     27.98     13.95      1.55     41.51   .25
                    FRAGMENT 25.35                  SIEVED  9.50ROCK PERCENT 15.97
                                                                           1
        7           26.10     24.90     22.77     21.00     15.23      1.47     44.53   .19
                    38.36     36.60     33.47     30.87     22.38      1.59     40.00   .18
                    FRAGMENT 23.04                  SIEVED 13.81ROCK PERCENT  2.83
                                                                           1
       10           28.33     26.05     24.43     21.07     13.40      1.46     44.91   .20
                    41.36     38.03     35.66     30.76     19.56      1.59     40.00   .30
                    FRAGMENT 25.11                  SIEVED 15.32ROCK PERCENT 31.05
                                                                           1
       14           26.40     24.13     23.30     20.54     15.46      1.57     40.75   .10
                    41.44     37.88     36.58     32.24     24.27      1.75     33.96   .28
                    FRAGMENT 23.61                  SIEVED  6.28ROCK PERCENT 15.58
                                                           (16.45)         1
       17           20.70     19.27     18.67     16.46     12.53      1.72     35.09   .10
                    35.60     33.14     32.11     28.31     21.55      1.84     30.57   .13
                    FRAGMENT 18.12                  SIEVED 15.20ROCK PERCENT  9.45
                                                                           3
       27           15.83     15.24     14.45     13.11     10.38      1.55     41.51
                    24.53     23.62     22.39     20.32     16.08
                    FRAGMENT                        SIEVED 11.36ROCK PERCENT  7.60
                                                                           3
       46           20.35     17.96     17.39     15.96     12.82      1.53     42.26
                    31.13     27.47     26.60     24.41     19.61
                    FRAGMENT                        SIEVED 12.14ROCK PERCENT 16.32
                                                                           3
       58           15.70     13.88     13.73     10.83      6.19      1.67     36.98
                    26.21     23.17     22.92     18.08     10.33
                    FRAGMENT                        SIEVED  6.01ROCK PERCENT 34.93


        1=FIST
        2=CORE
        3=LOOSE
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LATHAM or CAVODE SILT LOAM (26,02,C,b)

Location: 215' S of Twp. Rd. 171d and 20' W of farm lane, SW¼ NW¼ Sec. 4, White Eyes Twp., ARS Hydrologic Exp. Sta., Coshocton Co.
Vegetation and land use: Meadow crop
Topography: Rolling upland, upper slope 10 percent (elev. 1120)
Drainage: Somewhat poorly drained
Parent Material: Gray clay shale, Allegheny Series, Pennsylvanian System
Described and sampled by: G. E. Kelley and G. P. Lawless

Horizon	Description
Ap	0 to 6 inches. Brown to dark brown (10YR 4/3) silt loam, weak medium granular structure, friable, roots abundant, moderately rapid permeability, less than 5% coarse material less than 3 inches in diameter, pH 6.8, abrupt smooth boundary.
B21t	6 to 10 inches. Yellowish brown (10YR 5/4) heavy silt loam with common fine and medium distinct pale brown (10YR 6/3) and yellowish brown (10YR 5/8) mottles, weak fine subangular blocky structure, friable, roots common, thin very patchy light yellowish brown (10YR 6/4) clay films on vertical and horizontal ped surfaces, moderate permeability, less than 5% coarse material less than 3 inches in diameter, pH 6.6, clear wavy boundary.
IIB22g	10 to 24 inches. Yellowish brown (10YR 5/4) light silty clay with many (75% of ped surfaces) coarse prominent light olive gray (5Y 6/2) and common medium distinct dark yellowish brown (10YR 4/4) mottles, moderate fine and medium angular and subangular blocky structure, firm, roots occasional, thin patchy light yellowish brown (10YR 6/4) clay films on vertical and horizontal ped surfaces, slow permeability, 15% coarse material less than 6 inches in diameter, pH 5.2, clear wavy boundary, horizon thickness ranges from 6 to 18 inches across the pit face.
IIB23t*	24 to 37 inches. Yellowish brown (10YR 5/4) light silty clay loam with few fine distinct yellowish brown (10YR 5/8) and light brownish gray (10YR 6/2) and many medium distinct brown to dark brown (10YR 4/3) mottles, moderate fine and medium angular blocky structure, very firm, roots occasional, thin continuous pale olive (5Y 6/3) clay films on vertical ped surfaces and patchy on horizontal ped surfaces, dark concretions were common, very slow permeability, 20% coarse material less than 3 inches in diameter, dense and compact horizon, pH 5.2, gradual smooth boundary.
IICg	37 to 49 inches plus. Light olive brown (2.5Y 5/4) silty clay loam with many (50% of ped surfaces) coarse distinct light olive gray (5Y 6/2) and common fine distinct yellowish brown (10YR 5/6) mottles, massive, thin patchy pale olive (5Y 6/3) clay films on stone surfaces, moderately slow permeability, 60% coarse material less than 3 inches in diameter which increases to 90% shale at a depth of 45 inches, a stone line with stones up to 6 inches in diameter occurred at 37 inches, pH 5.2.
	49 inches plus. Sampled but not described.

Remarks: This site was sampled jointly by ARS for hydrologic studies and by SCS for soil characterization. Soil conditions were moist. Texture, permeability, and stone content by volume were estimated in the field; stones measured on long axis; pH by colorimetric field indicators. The weather was rainy, cloudy and cold. This site is a representative component of the Keene (shallow phase) soil previously mapped on the station.

*Horizon of least permeability.

COSHOCTON, OHIO

LATHAM or CAVODE SILT LOAM (26,02,C,b)

WEIGHT PERCENT AND VOLUME PERCENT OF WATER RETAINED

IDENTIFICATION				TENSIONS (BARS)					BD	TP	K
26	2	2	2	.1	.3	.6	3.	15.	G/CC	PCT	IN/HR
DEPTH									1		
0				30.76	26.99	23.99	15.54	7.82	1.41	46.79	.13
				43.37	38.05	33.82	21.91	11.02	1.50	43.40	.38
				FRAGMENT	24.27		SIEVED	8.55ROCK	PERCENT	12.35	
									1		
6				26.58	24.36	22.76	19.25	12.71	1.53	42.26	.46
				40.66	37.27	34.82	29.45	19.44	1.69	36.23	.32
				FRAGMENT	23.31		SIEVED	12.66ROCK	PERCENT	7.52	
									1		
10				26.52	24.22	21.47	16.12	13.41	1.60	39.62	.54
				42.43	38.75	34.35	25.79	21.45	1.79	32.45	.77
				FRAGMENT	22.43		SIEVED	14.46ROCK	PERCENT	15.41	
									1		
24				18.53	17.71	16.61	15.07	11.33	1.78	32.83	0
				32.98	31.52	29.56	26.82	20.16	1.87	29.43	.04
				FRAGMENT	16.63		SIEVED	9.19ROCK	PERCENT	28.96	
									1		
37				15.87	15.06	14.42	13.55	10.96	1.80	32.08	0
				28.56	27.10	25.95	24.39	19.72	1.88	29.06	.06
				FRAGMENT	14.84		SIEVED	10.24ROCK	PERCENT	22.44	
									3		
49				14.04	12.94	12.23	11.27	7.48	1.79	32.45	
				25.13	23.16	21.89	20.17	13.38			
				FRAGMENT			SIEVED	8.90ROCK	PERCENT	58.97	

1=FIST
2=CORE
3=LOOSE

HARTSELLS*LOAM (26,03,C,a)

Location: 180' E of Twp. Rd. 190a and 70' W of top of knoll, SW¼ SE¼ SE¼ Sec. 5, White Eyes Twp., ARS Hydrologic Exp. Sta., Coshocton Co.
Vegetation and land use: Cropland (wheat)
Topography: Rolling upland, ridgetop, 10% slope (elev. 1160)
Drainage: Well drained
Parent Material: Lower Freeport sandstone, Allegheny Series, Pennsylvanian System
Described and sampled by: G. E. Kelley and G. P. Lawless

Horizon	Description
Ap	0 to 8 inches. Brown to dark brown (10YR 4/3) loam, weak fine subangular blocky structure, very friable, roots abundant, moderately rapid permeability, 15% coarse material less than 8 inches in diameter, pH 6.8, abrupt smooth boundary.
B21t	8 to 17 inches. Yellowish brown (10YR 5/6) loam, weak fine and medium subangular blocky structure, very friable, roots common, thin very patchy brown to dark brown (7.5YR 4/4) clay films on vertical ped surfaces, moderate permeability, 15% coarse material less than 8 inches in diameter, pH 5.0, clear smooth boundary.
B22t	17 to 29 inches. Yellowish brown (10YR 5/6) heavy sandy loam, moderate medium subangular blocky structure, friable, roots common, thin very patchy brown to dark brown clay films on vertical and horizontal ped surfaces, moderate permeability, 15% coarse material less than 8 inches in diameter, pH 4.8, clear wavy boundary.
B23t	29 to 40 inches. Mixed strong brown (10YR 5/6) and pale brown (10YR 6/3) light sandy clay loam, weak medium subangular blocky structure, friable, roots occasional, thin patchy brown to dark brown (7.5YR 4/4) clay films on vertical and horizontal ped surfaces, moderate permeability, 50% coarse material less than 8 inches in diameter, pH 4.8, clear wavy boundary.
C	40 to 60 inches plus. Loose sand and very soft coarse grained dark brown (7.5YR 3/2) sandstone, roots occasional, thin very patchy brown to dark brown (7.5YR 4/4) clay films on stone surfaces.

Remarks: This site was sampled jointly by ARS for hydrologic studies and by SCS for soil characterization. Soil conditions were moist. Texture, permeability, and stone content by volume were estimated in the field; stones measured on long axis; pH by colorimetric field indicators. The weather was cloudy and cold. This site is representative of the Muskingum Loam soils previously mapped on the station.

*Clymer is series name now used for this soil in Ohio (1967).

HARTSELLS LOAM (26,03,C,a)

```
      WEIGHT  PERCENT  AND  VOLUME  PERCENT  OF  WATER  RETAINED

IDENTIFICATION         T E N S I O N S  (BARS)
                                                                 BD       TP      K
26    3    2    1      .1        .3        .6        3.        15.       G/CC      PCT    IN/HR

      DEPTH                                                         1
        0            23.93     19.99     17.60     16.84      7.91     1.54     41.89     .28
                     36.85     30.78     27.10     25.93     12.18     1.63     38.49     .60
                     FRAGMENT  18.47                 SIEVED   7.09ROCK PERCENT 41.03
                                                                       1
        8            20.84     18.50     16.09     15.61     10.36     1.56     41.13    1.10
                     32.51     28.86     25.10     24.35     16.16     1.63     38.49     .35
                     FRAGMENT  17.09                 SIEVED   8.55ROCK PERCENT  5.72
                                                                       1
       17            22.07     18.39     14.34     13.88      8.35     1.61     39.25    1.82
                     35.53     29.60     23.08     22.34     13.44     1.68     36.60    1.00
                     FRAGMENT  17.39                 SIEVED   6.60ROCK PERCENT  1.25
                                                                       1
       29            22.16     19.06     13.91     13.61      7.43     1.57     40.75    1.04
                     34.79     29.92     21.83     21.36     11.66     1.63     38.49     .69
                     FRAGMENT  17.51                 SIEVED   8.71ROCK PERCENT  1.89
                                                                       3
       40            18.59     15.55     14.84     13.38      6.23     1.44     45.66
                     26.76     22.39     21.36     19.26      8.97
                     FRAGMENT                        SIEVED   5.09ROCK PERCENT  1.89

      1=FIST
      2=CORE
      3=LOOSE
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HARTSELLS LOAM (26,03,C,b)

Location: 180' E of Twp. Rd. 190a and 15' S of pit 26,03,C,a, SW¼ SE¼ SE¼ Sec. 5, White Eyes Twp., ARS Hydrologic Exp. Sta., Coshocton Co.
Vegetation and land use: Cropland (wheat)
Topography: Rolling upland, ridgetop, 10% slope (elev. 1160)
Drainage: Well drained
Parent Material: Lower Freeport sandstone, Allegheny Series, Pennsylvanian System
Described and sampled by: G. E. Kelley and G. P. Lawless

Horizon	Description
Ap	0 to 8 inches. Brown to dark brown (10YR 4/3) loam, weak fine subangular blocky structure, very friable, roots abundant, moderately rapid permeability, 15% coarse material less than 8 inches in diameter, pH 6.8, abrupt smooth boundary.
B21t	8 to 17 inches. Yellowish brown (10YR 5/6) heavy loam, weak medium subangular blocky structure, very friable, roots common, thin very patchy dark yellowish brown (10YR 4/4) clay films on vertical and horizontal ped surfaces, moderate permeability, 15% coarse material less than 8 inches in diameter, pH 6.8, clear smooth boundary.
B22t	17 to 27 inches. Yellowish brown (10YR 5/6) light sandy clay loam with patches of light gray (2.5Y 7/2) sandy loam material, moderate medium subangular blocky structure, friable, roots common, thin patchy brown to dark brown (7.5YR 4/4) clay films on vertical and horizontal ped surfaces, moderate permeability, 15% coarse material less than 8 inches in diameter, pH 5.0, clear wavy boundary.
B23t	27 to 35 inches. Mixed yellowish brown (10YR 5/6) and pale brown (10YR 6/3) light sandy clay loam, weak medium subangular blocky structure, friable, roots common, thin patchy brown to dark brown (7.5YR 4/4) clay films on vertical and horizontal stone and ped surfaces, moderate permeability, 50% coarse material less than 8 inches in diameter, pH 5.0, clear wavy boundary.
B3	35 to 42 inches. Mixed brown to dark brown (7.5YR 4/4) and strong brown (7.5YR 5/6) loamy sand, weak coarse subangular blocky structure, very friable, roots occasional, thin patchy dark yellowish brown (10YR 4/4) clay films on vertical ped surfaces, moderately rapid permeability, 45% coarse material less than 8 inches in diameter, pH 5.0, gradual smooth boundary.
C	42 to 60 inches plus. Strong brown (7.5YR 5/6) changing to pale olive (5Y 6/4) below 57 inches, sand and very soft loose-grained sandstone, roots occasional, pH 5.0.

Remarks: This site was sampled jointly by ARS for hydrologic studies and by SCS for soil characterization. Soil conditions were moist. Texture, permeability, and stone content by volume were estimated in the field; stones measured on long axis; pH by colorimetric field indicators. The weather was cloudy with a drizzle. This site is representative of the Muskingum loam soils previously mapped on the station.

HARTSELLS LOAM (26,03,C,b)

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       WEIGHT   PERCENT   AND   VOLUME   PERCENT   OF   WATER   RETAINED

IDENTIFICATION           T E N S I O N S  (BARS)
                                                                        BD      TP       K
26   3    2   2      .1        .3        .6        3.        15.       G/CC     PCT     IN/HR

     DEPTH                                                                 1
        0           24.81     20.60     16.66     16.66      8.76     1.58     40.38    .50
                    39.19     32.54     26.32     26.32     13.84     1.66     37.36    .42
                    FRAGMENT  19.51                 SIEVED   8.03ROCK  PERCENT 16.83
                                                                           1
        8           21.98     17.93     15.91     15.13      6.85     1.65     37.74   1.10
                    36.26     29.58     26.25     24.96     11.30     1.73     34.72    .96
                    FRAGMENT  16.90                 SIEVED   7.56ROCK  PERCENT  4.00
                                                                           1
       17           20.29     16.19     12.03     11.88      7.32     1.66     37.36    .95
                    33.68     26.87     19.96     19.72     12.15     1.74     34.34    .21
                    FRAGMENT  14.51                 SIEVED   7.83ROCK  PERCENT  2.46
                                                                           1
       27           20.52     16.47     14.11     11.94      7.98     1.51     43.02   3.31
                    30.98     24.86     21.30     18.02     12.04     1.56     41.13    .18
                    FRAGMENT  16.54                 SIEVED   5.36ROCK  PERCENT 27.78
                                                                           3
       35           19.11     15.83     13.81     12.06      7.18     1.36     48.68
                    25.98     21.52     18.78     16.40      9.76
                    FRAGMENT                        SIEVED   5.18ROCK  PERCENT  2.28
                                                                           3
       42           23.15     18.53     15.68     13.85      7.33     1.23     53.58
                    28.47     22.79     19.28     17.03      9.01
                    FRAGMENT                        SIEVED   7.45ROCK  PERCENT  2.86


       1=FIST
       2=CORE
       3=LOOSE
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HARTSELLS LOAM (26,03,F,a)

Location: 210' S of Twp. Rd. 188b and 120' W of top of hill, SW¼ NE¼ NW¼ Sec. 5, White Eyes Twp., ARS Hydrologic Exp. Sta., Coshocton Co.
Vegetation and land use: Woods; white oak and wild cherry
Topography: Rolling upland, middle concave slope, 33% slope (elev. 1225)
Drainage: Well drained
Parent Material: Lower Freeport sandstone, Allegheny Series, Pennsylvanian System
Described and sampled by: G. E. Kelley and G. P. Lawless

Horizon	Description
01	3 to 1 inches. Deciduous leaf litter.
02	1 to 0 inch. Organic material decomposed beyond recognition.
A1	0 to 2 inches. Very dark grayish brown (10YR 3/2) loam, moderate fine granular structure, very friable, roots abundant, moderately rapid permeability, 10% coarse material less than 12 inches in diameter, pH 5.4, clear wavy boundary, horizon thickness ranges from 1 to 4 inches across the face of pit.
A2	2 to 10 inches. Yellowish brown (10YR 5/4) light loam, weak fine and medium subangular blocky structure, friable, roots abundant, many small pores, moderately rapid permeability, 10% coarse material less than 12 inches in diameter, pH 5.0, clear smooth boundary, dark surface material extends into this horizon through old root channels.
B&A	10 to 15 inches. Yellowish brown (10YR 5/4) loam, weak fine and medium subangular blocky structure, friable, roots abundant, very porous ped interiors, thin very patchy light yellowish brown (10YR 6/4) silt-clay films on vertical and horizontal ped surfaces, moderate permeability, 10% coarse material less than 12 inches in diameter, pH 4.8, clear smooth boundary.
B2t	15 to 26 inches. Yellowish brown (10YR 5/6) heavy loam, moderate medium subangular blocky structure, firm, roots common, thin patchy light yellowish brown (10YR 6/4) clay films on vertical and horizontal ped surfaces, moderate permeability, 15% coarse material less than 12 inches in diameter, pH 4.8, clear wavy boundary.
B3t	26 to 31 inches. Yellowish brown (10YR 5/6) sandy loam grading to loamy sand below 29 inches, weak medium subangular blocky structure, firm, very compact, roots common, thin patchy brown to dark brown (7.5YR 4/4) clay films on vertical and horizontal ped surfaces, moderate permeability, 15% coarse material less than 12 inches in diameter, pH 4.6, gradual boundary.
C	31 to 65 inches plus. Loose sand and very soft coarse-grained sandstone (80% stones), roots occasional, pH 4.8.

Remarks: This site was sampled jointly by ARS for hydrologic studies and by SCS for soil characterization. Soil conditions were moist. Texture, permeability, and stone content by volume were estimated in the field; stones measured on long axis; pH by colorimetric field indicators. The weather was warm and clear. This soil is representative of the Muskingum loam soils previously mapped on the station. The site is located in an area used by Dr. N. Holowaychuk for Strontium 90 experimental plots.

HARTSELLS LOAM (26,03,F,a)

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        WEIGHT  PERCENT  AND  VOLUME  PERCENT  OF  WATER  RETAINED

IDENTIFICATION         T E N S I O N S  (BARS)
                                                                  BD        TP      K
26    3    3    1       .1        .3        .6        3.        15.       G/CC      PCT    IN/HR

      DEPTH                                                                  3
       0                32.25     29.32     22.28     21.69      9.32     1.19     55.09
                        38.37     34.89     26.51     25.81     11.09
                        FRAGMENT                        SIEVED   9.81ROCK PERCENT 17.68
                                                                             1
       2                24.80     20.94     19.74     13.50      3.62     1.25     52.83   2.19
                        31.00     26.17     24.67     16.87      4.52     1.36     48.68   2.44
                        FRAGMENT 20.54                  SIEVED   4.58ROCK PERCENT 42.83
                                                                             1
      10                16.89     15.03     13.55     11.20      4.11     1.76     33.58   1.11
                        29.72     26.45     23.84     19.71      7.23     1.82     31.32    .36
                        FRAGMENT 15.55                  SIEVED   4.65ROCK PERCENT 42.18
                                                                             1
      15                17.85     16.66     14.19     12.46      8.75     1.69     36.23    .41
                        30.16     28.15     23.98     21.05     14.78     1.78     32.83    0
                        FRAGMENT 17.10                  SIEVED   6.73ROCK PERCENT 25.53
                                                                             1
      26                16.09     14.22     13.56     10.89      5.16     1.74     34.34    .46
                        27.99     24.74     23.59     18.94      8.97     1.78     32.83    .15
                        FRAGMENT 10.98                  SIEVED   4.56ROCK PERCENT  6.15
                                                                             3
      31                 6.38      4.80      3.79      2.58      1.57     1.62     38.87
                        10.33      7.77      6.13      4.17      2.54
                        FRAGMENT                        SIEVED   1.48ROCK PERCENT  1.84
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1=FIST
2=CORE
3=LOOSE

HARTSELLS LOAM (26,03,F,b)

Location: 225' S of Twp. Rd. 188b and 120' W of top of hill, SW¼ NE¼ NW¼ Sec. 5, White Eyes Twp., ARS Hydrologic Exp. Sta., Coshocton Co.
Vegetation and land use: Woods; white oak and wild cherry
Topography: Rolling upland, middle concave slope, 33% slope (elev. 1225)
Drainage: Well drained
Parent Material: Lower Freeport sandstone, Allegheny Series, Pennsylvanian System
Described and sampled by: G. E. Kelley and G. P. Lawless

Horizon	Description
01	3 to 1 inches. Deciduous leaf litter.
02	1 to 0 inch. Organic material decomposed beyond recognition.
A1	0 to 2 inches. Very dark grayish brown (10YR 3/2) light loam, moderate fine granular structure, very friable, roots abundant, moderately rapid permeability, 10% coarse material less than 12 inches in diameter, pH 5.2, clear smooth boundary.
A2	2 to 8 inches. Yellowish brown (10YR 5/4) sandy loam, weak fine and medium subangular blocky structure, friable, roots abundant, many small pores, moderately rapid permeability, 15% coarse material less than 12 inches in diameter, pH 5.0, clear smooth boundary.
B&A	8 to 12 inches. Yellowish brown (10YR 5/4) loam, weak medium and fine subangular blocky structure, friable, roots common, very porous ped interiors, thin very patchy light yellowish brown (10YR 6/4) silt-clay films on vertical and horizontal ped surfaces, moderately rapid permeability, 15% coarse material less than 12 inches in diameter, pH 4.8, clear smooth boundary.
B21t	12 to 20 inches. Yellowish brown (10YR 5/6) heavy loam, moderate medium subangular blocky structure, firm, roots common, thin patchy light yellowish brown (10YR 6/4) clay films on vertical and horizontal ped surfaces, moderate permeability, 20% coarse material less than 12 inches in diameter, pH 4.8, clear smooth boundary.
B22t	20 to 27 inches. Yellowish brown (10YR 5/6) heavy loam, moderate medium and coarse subangular blocky structure, firm, roots common, thin patchy light yellowish brown (10YR 6/4) and brown to dark brown (7.5YR 4/4) clay films on vertical and horizontal ped surfaces, moderate permeability, 30% coarse material less than 12 inches in diameter, pH 4.6, gradual boundary.
B3t	27 to 33 inches. Yellowish brown (10YR 5/6) sandy loam grading to loamy sand below 30 inches, weak coarse subangular blocky structure, friable, roots common, thin very patchy brown to dark brown (7.5YR 4/4) clay films on vertical and horizontal ped surfaces, moderate permeability, 35% coarse material less than 12 inches in diameter, pH 4.6, gradual boundary.
C	33 to 60 inches plus. Loose sand and soft coarse-grained sandstone (85% stone), roots occasional.

Remarks: This site was sampled jointly by ARS for hydrologic studies and by SCS for soil characterization. Soil conditions were moist. Texture, permeability, and stone content by volume were estimated in the field; stones measured on long axis; pH by colorimetric field indicators. The weather was warm and cloudy. This soil is representative of the Muskingum loam soils previously mapped on the station. The site is located in an area used by Dr. N. Holowaychuk for Strontium 90 experimental plots.

HARTSELLS LOAM (26,03,F,b)

WEIGHT PERCENT AND VOLUME PERCENT OF WATER RETAINED

IDENTIFICATION	TENSIONS (BARS)					BD	TP	K
26 3 3 2	.1	.3	.6	3.	15.	G/CC	PCT	IN/HR
DEPTH						3		
0	33.86	27.52	23.18	14.05	8.39	1.12	57.74	
	37.92	30.82	25.96	15.73	9.39			
	FRAGMENT			SIEVED	9.37ROCK	PERCENT	14.70	
						1		
2	24.56	20.51	18.86	11.18	3.91	1.38	47.92	1.70
	33.89	28.30	26.02	15.42	5.39	1.44	45.66	1.90
	FRAGMENT	18.25		SIEVED	4.34ROCK	PERCENT	15.93	
						1		
8	18.01	15.71	14.55	10.87	3.35	1.72	35.09	2.80
	30.97	27.02	25.02	18.69	5.76	1.78	32.83	.44
	FRAGMENT	14.51		SIEVED	3.70ROCK	PERCENT	14.49	
						1		
12	18.82	17.18	16.91	13.10	5.81	1.62	38.87	.19
	30.48	27.83	27.39	21.22	9.41	1.72	35.09	.08
	FRAGMENT	19.51		SIEVED	5.75ROCK	PERCENT	15.08	
						1		
20	11.45	10.89	10.19	8.20	4.60	2.01	24.15	.03
	23.01	21.88	20.48	16.48	9.24	2.04	23.02	0
	FRAGMENT	7.61		SIEVED	4.07ROCK	PERCENT	8.47	
						1		
27	8.86	7.78	6.69	4.99	2.83	1.84	30.57	.20
	16.30	14.31	12.30	9.18	5.20	1.89	28.68	0
	FRAGMENT	10.41		SIEVED	2.26ROCK	PERCENT	10.78	
						3		
33	9.87	7.53	6.75	5.01	1.96	1.75	33.96	
	17.27	13.17	11.81	8.76	3.43			
	FRAGMENT			SIEVED	1.54ROCK	PERCENT	11.91	

1=FIST
2=CORE
3=LOOSE

DEKALB SANDY LOAM (26,04,F,a)

Location: 265' S of Twp. Rd. 188b and 120' W of top of hill, SW¼ NE¼ NW¼ Sec. 5, White Eyes Twp., ARS Hydrologic Exp. Sta., Coshocton Co.
Vegetation and land use: Woods; red and white oak
Topography: Rolling upland, middle slope, 33% slope (elev. 1225)
Drainage: Well to excessively drained
Parent Material: Lower Freeport sandstone, Allegheny Series, Pennsylvanian System
Described and sampled by: G. E. Kelley and G. P. Lawless

Horizon	Description
01	3 to 1 inches. Deciduous leaf litter.
02	1 to 0 inch. Organic material decomposed beyond recognition.
A1	0 to 2 inches. Very dark grayish brown (10YR 3/2) sandy loam, moderate fine granular structure, very friable, roots abundant, moderately rapid permeability, 10% coarse material less than 8 inches in diameter, pH 5.0, clear smooth boundary.
A2	2 to 6 inches. Light yellowish brown (10YR 6/4) loamy sand with fingers of dark grayish brown (10YR 4/2) and streaks of yellowish brown (10YR 5/6), weak fine and medium subangular blocky structure, very friable, roots abundant, moderately rapid permeability, 15% coarse material less than 8 inches in diameter, pH 4.8, clear smooth boundary.
B1	6 to 14 inches. Light yellowish brown (10YR 6/4) loamy sand, weak medium and fine subangular blocky structure, very friable, roots abundant, moderately rapid permeability, 20% coarse material less than 8 inches in diameter, pH 4.8, gradual boundary.
B2	14 to 24 inches. Yellowish brown (10YR 5/4) loamy sand, weak medium subangular blocky structure, friable, roots common, faint evidence of clay bridging in lower part of horizon, moderately rapid permeability, 30% coarse material less than 8 inches in diameter, pH 4.8, gradual boundary.
B3	24 to 34 inches. Yellowish brown (10YR 5/4) loamy sand with pockets of sand, weak coarse subangular blocky structure, friable, roots common, thin very patchy pale brown (10YR 6/3) clay films bridging sand grains and on tops and sides of stones, rapid permeability, 40% coarse material less than 12 inches in diameter, pH 4.8, gradual boundary.
C	34 to 65 inches plus. Sand and soft coarse-grained sandstone (50% of volume), roots occasional, pH 4.8.

Remarks: This site was sampled jointly by ARS for hydrologic studies and by SCS for soil characterization. Soil conditions were moist. Texture, permeability, and stone content by volume were estimated in the field; stones measured on long axis, pH by colorimetric field indicators. The weather was cloudy, rainy, and warm. This soil is representative of the Muskingum sandy loam soils previously mapped on the station. The site is located in an area used by Dr. N. Holowaychuk for Strontium 90 experimental plots.

DEKALB SANDY LOAM (26,04,F,a)

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      WEIGHT  PERCENT  AND  VOLUME  PERCENT  OF  WATER  RETAINED

IDENTIFICATION         T E N S I O N S  (BARS)
                                                                        BD       TP     K
26    4    3    1     .1        .3        .6        3.        15.      G/CC     PCT  IN/HR

     DEPTH                                                               3
      0               35.52     29.76     22.67     18.01     11.89      .94    64.53
                      33.38     27.97     21.30     16.92     11.17
                      FRAGMENT                       SIEVED 11.30ROCK PERCENT 18.31
                                                                         1
      2               17.62     13.20     12.49      7.45      3.77     1.28    51.70  4.06
                      22.55     16.89     15.98      9.53      4.82     1.36    48.68 11.90
                      FRAGMENT 14.89                 SIEVED  3.44ROCK PERCENT 19.27
                                                                         3
      6               13.01      9.86      8.82      5.17      2.12     1.73    34.72
                      22.50     17.05     15.25      8.94      3.66
                      FRAGMENT                       SIEVED  1.73ROCK PERCENT 10.77
                                                                         1
     14               11.76     10.42      8.79      7.03      2.97     1.77    33.21  1.49
                      20.81     18.44     15.55     12.44      5.25     1.86    29.81   .44
                      FRAGMENT  9.89                 SIEVED  2.53ROCK PERCENT  1.70
                                                                         1
     24                9.33      7.65      4.99      4.80      2.37     1.74    34.34   .85
                      16.23     13.31      8.68      8.35      4.12     1.78    32.83   .81
                      FRAGMENT  8.94                 SIEVED  2.29ROCK PERCENT  6.88
                                                                         3
     34                7.79      6.59      3.96      3.55      2.13     1.60    39.62
                      12.46     10.54      6.33      5.68      3.40
                      FRAGMENT                       SIEVED  1.63ROCK PERCENT  1.20

      1=FIST
      2=CORE
      3=LOOSE
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DEKALB SANDY LOAM (26,04,F,b)

Location: 295' S of Twp. Rd. 188b and 120' W of top of hill, SW¼ NE¼ NW¼ Sec. 5, White Eyes Twp., ARS Hydrologic Exp. Sta., Coshocton Co.
Vegetation and land use: Woods; oak, hickory, tulip
Topography: Rolling upland, middle slope, 33% slope (elev. 1225)
Drainage: Well to excessive
Parent Material: Lower Freeport sandstone, Allegheny Series, Pennsylvanian System
Described and sampled by: G. E. Kelley and G. P. Lawless

Horizon	Description
01	2 to 1 inch. Deciduous leaf litter.
02	1 to 0 inch. Organic material decomposed beyond recognition.
A1	0 to 2 inches. Very dark grayish brown (10YR 3/2) sandy loam, moderate fine granular structure, very friable, roots abundant and ranged up to 2 inches in diameter, moderately rapid permeability, 10% coarse material less than 8 inches in diameter, pH 5.4, clear smooth boundary.
A2	2 to 7 inches. Yellowish brown (10YR 5/4) loamy sand with fingers of dark grayish brown (10YR 4/2) and streaks of yellowish brown (10YR 5/6), weak fine and medium subangular blocky structure, very friable, roots abundant, moderately rapid permeability, 15% coarse material less than 8 inches in diameter, pH 4.8, clear smooth boundary.
B1	7 to 16 inches. Light yellowish brown (10YR 6/4) loamy sand, weak medium and fine subangular blocky structure, very friable, roots abundant, moderately rapid permeability, 15% coarse material less than 8 inches in diameter, an animal hole approximately 4 inches in diameter occurred at a depth of 15 inches, pH 4.8, gradual boundary.
B2	16 to 26 inches. Light yellowish brown (10YR 6/4) loamy sand with streaks of yellowish brown (10YR 5/6), weak medium subangular blocky structure, friable, roots common, thin very patchy pale brown (10YR 6/3) clay films bridging some sand grains, moderately rapid permeability, 25% coarse material less than 8 inches in diameter, pH 4.8, gradual boundary.
B3	26 to 38 inches. Mixed light yellowish brown (10YR 6/4) and brownish yellow (10YR 6/6) loamy sand with pockets of sand, weak coarse subangular blocky structure, friable, roots common, thin very patchy pale brown (10YR 6/3) clay films bridging some sand grains and on stone surfaces, rapid permeability, 60% coarse material less than 12 inches in diameter, pH 4.8, diffuse boundary.
C	38 to 60 inches plus. Loose sand and soft coarse-grained sandstone (60% of volume), roots occasional, pH 5.0.

Remarks: This site was sampled jointly by ARS for hydrologic studies and by SCS for soil characterization. Soil conditions were moist. Texture, permeability, and stone content by volume were estimated in the field; stones measured on long axis; pH by colorimetric field indicators. The weather was cloudy, rainy, and warm. This soil is representative of the Muskingum sandy loam soils previously mapped on the station. The site is located in an area used by Dr. N. Holowaychuk for Strontium 90 experimental plots.

DEKALB SANDY LOAM (26,04,F,b)

WEIGHT PERCENT AND VOLUME PERCENT OF WATER RETAINED

IDENTIFICATION 26 4 3 2	TENSIONS (BARS) .1	.3	.6	3.	15.	BD G/CC	TP PCT	K IN/HR
DEPTH						3		
0	33.33	25.56	18.96	15.26	8.82	.92	65.28	
	30.66	23.51	17.44	14.03	8.11			
	FRAGMENT			SIEVED	9.37ROCK	PERCENT	11.87	
						1		
2	14.00	11.33	9.11	5.72	2.47	1.20	54.72	13.91
	16.80	13.59	10.93	6.86	2.96	1.28	51.70	11.10
	FRAGMENT	11.32		SIEVED	2.87ROCK	PERCENT	22.58	
						3		
7	13.85	11.06	8.29	5.55	2.51	1.56	41.13	
	21.60	17.25	12.93	8.65	3.91			
	FRAGMENT			SIEVED	1.79ROCK	PERCENT	10.78	
						3		
16	11.00	10.03	8.02	7.34	2.74	1.64	38.11	
	18.04	16.44	13.15	12.03	4.49			
	FRAGMENT			SIEVED	2.40ROCK	PERCENT	15.26	
						3		
26	10.94	9.96	8.12	7.48	3.69	1.69	36.23	
	18.48	16.83	13.72	12.64	6.23			
	FRAGMENT			SIEVED	2.72ROCK	PERCENT	14.33	
						3		
38	8.90	7.33	6.04	5.55	1.87	1.54	41.89	
	13.70	11.28	9.30	8.54	2.87			
	FRAGMENT			SIEVED	2.16ROCK	PERCENT	6.59	

1=FIST
2=CORE
3=LOOSE

WELLSTON SILT LOAM (26,05,C,a)

Location: 45' NE of fence and 60' NW of pit 26,05,C,b, SE¼ NW¼ NE¼ Sec. 5, White Eyes Twp., ARS Hydrologic Exp. Sta., Coshocton Co.
Vegetation and land use: Meadow crop
Topography: Rolling upland, middle slope, 10% slope (elev. 1180)
Drainage: Well drained
Parent Material: Washingtonville shale, Allegheny Series, Pennsylvanian System
Described and sampled by: H. W. Black, G. E. Kelley, G. P. Lawless

Horizon	Description
Ap	0 to 7 inches. Brown to dark brown (10YR 4/3) silt loam, weak fine subangular blocky breaking to weak fine granular structure, friable, roots abundant, moderate permeability, less than 5% coarse material up to 3 inches in diameter, pH 6.6, abrupt smooth boundary.
B21t	7 to 15 inches. Yellowish brown (10YR 5/6) heavy silt loam, moderate medium subangular blocky structure, friable, roots common, thin patchy yellowish brown (10YR 5/4) clay films on vertical and horizontal ped surfaces, moderate permeability, 25% coarse material less than 3 inches in diameter, pH 6.6, clear smooth boundary.
B22t	15 to 26 inches. Yellowish brown (10YR 5/4) heavy silt loam, weak fine and medium subangular blocky structure, friable, roots common, thin patchy brown to dark brown (7.5YR 4/4) clay films on vertical and horizontal ped surfaces, moderate permeability, 40% coarse material with pockets containing up to 60%, shale fragments range up to 3 inches in diameter, pH 5.4, gradual boundary.
B3t*	26 to 34 inches. Yellowish brown (10YR 5/4) heavy silt loam, some platiness due to shale weathering in place which breaks to weak medium subangular blocky structure, friable, roots common, thin patchy brown to dark brown (7.5YR 4/4) clay films on vertical and horizontal ped surfaces, moderate permeability, 60% coarse material less than 3 inches in diameter, pH 5.0, gradual boundary.
C	34 to 55 inches plus. Rotten shale with thin patchy brown to dark brown (7.5YR 4/4) clay films on stone faces, some fine and occasional roots extend down cracks, pH 4.8, (not sampled by SCS).

Remarks: This site was sampled jointly by ARS for hydrologic studies and by SCS for soil characterization. Soil conditions were moist. Texture, permeability, and stone content by volume were estimated in the field; stones measured on long axis; pH by colorimetric field indicators. The weather was sunny and warm. This soil is a representative component of the Muskingum silt loam soils previously mapped on the station. It is felt that both Gilpin and Wellston soils were included in the former Muskingum silt loam mapping units.

*Horizon of least permeability.

WELLSTON SILT LOAM (26,05,C,a)

WEIGHT PERCENT AND VOLUME PERCENT OF WATER RETAINED

IDENTIFICATION	TENSIONS (BARS)							
26 5 2 1	.1	.3	.6	3.	15.	BD G/CC	TP PCT	K IN/HR
DEPTH						1		
0	26.82	23.85	19.72	18.86	8.83	1.42	46.42	1.25
	38.08	33.86	28.00	26.78	12.53	1.50	43.40	2.78
	FRAGMENT	22.27		SIEVED	10.04ROCK	PERCENT	17.67	
						1		
7	23.20	19.62	16.95	16.33	11.34	1.49	43.77	3.35
	34.56	29.23	25.25	24.33	16.89	1.58	40.38	1.73
	FRAGMENT	20.17		SIEVED	10.26ROCK	PERCENT	13.63	
						1		
15	26.27	22.49	18.04	17.27	9.74	1.50	43.40	.26
	39.40	33.73	27.06	25.90	14.61	1.60	39.62	.80
	FRAGMENT	20.10		SIEVED	11.15ROCK	PERCENT	40.77	
						1		
26	24.73	19.00	18.16	17.15	11.00	1.63	38.49	.58
	40.30	30.97	29.60	27.95	17.93	1.74	34.34	0
	FRAGMENT	17.57		SIEVED	9.87ROCK	PERCENT	2.70	
						3		
34	17.07	15.19	14.68	12.09	5.99	1.52	42.64	
	25.94	23.08	22.31	18.37	9.10			
	FRAGMENT			SIEVED	6.29ROCK	PERCENT	52.55	

1=FIST
2=CORE
3=LOOSE

WELLSTON SILT LOAM (26,05,C,b)

Location: 70' NE of fence and 110 W of electric pole, SE¼ NW¼ NE¼ Sec. 5, White Eyes Twp., ARS Hydrologic Exp. Sta., Coshocton Co.
Vegetation and land use: Meadow crop
Topography: Rolling upland, middle slope, 10% slope (elev. 1175)
Drainage: Well drained
Parent Material: Washingtonville shale, Allegheny Series, Pennsylvanian System
Described and sampled by: H. W. Black, G. E. Kelley, G. P. Lawless

Horizon	Description
Ap	0 to 9 inches. Brown to dark brown (10YR 4/3) silt loam, weak fine subangular blocky breaking to weak fine granular structure, friable, roots abundant, moderate permeability, less than 5% coarse material up to 3 inches in diameter, pH 6.6, abrupt smooth boundary.
B21t	9 to 17 inches. Dark yellowish brown (10YR 4/4) heavy silt loam, moderate fine and medium subangular blocky structure, friable, roots common, thin patchy yellowish brown (10YR 5/4) clay films on vertical and horizontal ped surfaces, moderate permeability, 8% coarse material less than 3 inches in diameter, pH 6.6, gradual smooth boundary.
B22t	17 to 27 inches. Dark yellowish brown (10YR 4/4) heavy silt loam, weak fine and medium subangular blocky structure, friable, roots common, thin patchy brown to dark brown (7.5YR 4/4) clay films on vertical and horizontal ped surfaces, moderate permeability, 25% coarse material less than 3 inches in diameter, pH 5.4, gradual wavy boundary.
B3t	27 to 40 inches. Yellowish brown (10YR 5/4) heavy silt loam, some platiness due to shale weathering in place which breaks to weak coarse and medium subangular blocky structure, friable, roots common, thin patchy brown to dark brown (7.5YR 4/4) clay films on vertical and horizontal ped surfaces, moderate permeability, 40% coarse material with pockets containing up to 70%, shale fragments range up to 3 inches in diameter, pH 5.0, gradual boundary.
C*	40 to 55 inches plus. Yellowish brown (10YR 5/4) heavy silt loam with streaks of light brownish gray (2.5Y 6/2), massive, roots occasional, thin patchy brown to dark brown (7.5YR 4/4) clay films on stone faces, moderately slow permeability, 60% coarse material (increases to 90% at 55 inches) less than 3 inches in diameter, shale interiors are yellowish brown (10YR 5/8), pH 4.8.

Remarks: This site was sampled jointly by ARS for hydrologic studies and by SCS for soil characterization. Soil conditions were moist. Texture, permeability, and stone content by volume were estimated in the field; stones measured on long axis; pH by colorimetric field indicators. The weather was sunny and warm. This soil is a representative component of the Muskingum silt loam soils previously mapped on the station. It is felt that both Gilpin and Wellston soils were included in the former Muskingum silt loam mapping units.

*Horizon of least permeability.

WELLSTON SILT LOAM (26,05,C,b)

```
       WEIGHT  PERCENT  AND  VOLUME  PERCENT  OF  WATER  RETAINED

IDENTIFICATION         T E N S I O N S  (BARS)
                                                                 BD        TP    K
26   5   2   2     .1       .3       .6       3.       15.      G/CC     PCT   IN/HR

     DEPTH                                                           1
       0          28.51    25.13    19.39    18.02     8.71     1.44    45.66    .39
                  41.05    36.18    27.92    25.94    12.54     1.52    42.64    .62
                  FRAGMENT 24.55                SIEVED  8.69ROCK PERCENT 14.42
                                                                     1
       9          26.29    25.00    22.66    19.67    10.42     1.44    45.66    .20
                  37.85    36.00    32.63    28.32    15.00     1.56    41.13  1.30
                  FRAGMENT 25.41                SIEVED 12.74ROCK PERCENT 19.50
                                                                     1
      17          25.39    23.71    20.94    18.01     9.65     1.58    40.38    .62
                  40.11    37.46    33.08    28.45    15.24     1.67    36.98    .45
                  FRAGMENT 22.55                SIEVED 12.44ROCK PERCENT 47.08
                                                                     1
      27          22.96    21.66    17.94    15.38     8.40     1.61    39.25    .21
                  36.96    34.87    28.88    24.76    13.52     1.72    35.09    .89
                  FRAGMENT 21.75                SIEVED 10.52ROCK PERCENT 50.75
                                                                     3
      40          19.94    18.97    16.07    15.89     9.47     1.43    46.04
                  28.51    27.12    22.98    22.72    13.54
                  FRAGMENT                      SIEVED  8.99ROCK PERCENT 62.69

       1=FIST
       2=CORE
       3=LOOSE
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GILPIN SILT LOAM (26,05,F,a)

Location: 45' W of lane and 70' S of watershed 132 flume, SE¼ SW¼ NW¼ Sec. 5, White Eyes Twp., ARS Hydrologic Exp. Sta., Coshocton Co.
Vegetation and land use: Woods; white oak
Topography: Rolling upland, middle slope, 14% slope (elev. 1045)
Drainage: Well drained
Parent Material: Olive silty shale, Allegheny Series, Pennsylvanian System
Described and sampled by: G. E. Kelley and G. P. Lawless

Horizon	Description
01	1-1/2 to 1/2 inch. Deciduous leaf litter.
02	1/2 to 0 inch. Organic material decomposed beyond recognition.
A1	0 to 1 inch. Dark brown (10YR 3/3) silt loam, moderate fine granular structure, friable, roots abundant, moderately rapid permeability, 5% coarse material less than 3 inches in diameter, pH 5.2, clear wavy boundary.
A2	1 to 9 inches. Light yellowish brown (10YR 6/4) silt loam, weak medium and fine subangular blocky structure, friable, roots abundant, moderate permeability, 5% coarse material less than 3 inches in diameter, pH 4.8, clear smooth boundary.
B1	9 to 15 inches. Yellowish brown (10YR 5/6) silt loam, weak medium and fine subangular blocky structure, friable, roots common, thin very patchy yellowish brown (10YR 5/4) clay films on vertical and horizontal ped surfaces, moderate permeability, 10% coarse material less than 3 inches in diameter, pH 4.6, clear smooth boundary.
B21t*	15 to 25 inches. Yellowish brown (10YR 5/6) heavy silt loam, weak to moderate medium subangular blocky structure, friable, roots common, thin patchy yellowish brown (10YR 5/6) and brown to dark brown (7.5YR 4/4) clay films on vertical and horizontal ped surfaces, moderate permeability, 15% coarse material less than 3 inches in diameter, pH 4.8, gradual boundary.
B22t	25 to 32 inches. Yellowish brown (10YR 5/6) light silty clay loam with light gray to gray (10YR 6/1) coatings on some shale fragments, weak fine and medium subangular blocky structure, friable, roots common, thin patchy brown to dark brown (7.5YR 4/4) clay films on vertical and horizontal ped surfaces, moderate permeability, 85% coarse material less than 3 inches in diameter, pH 4.8, gradual boundary.
R	32 to 60 inches plus. Light olive brown (2.5Y 5/4) silty shale with some fine and occasional roots extending down cracks.

Remarks: This site was sampled jointly by ARS for hydrologic studies and by SCS for soil characterization. Soil conditions were moist. Texture, permeability, and stone content by volume were estimated in the field; stones measured on long axis; pH by colorimetric field indicators. The weather was cloudy and cool. This soil is a representative component of the Muskingum silt loam soils as they were previously mapped on the station.

*Horizon of least permeability.

GILPIN SILT LOAM (26,05,F,a)

```
     WEIGHT  PERCENT  AND  VOLUME  PERCENT  OF  WATER  RETAINED

IDENTIFICATION        T E N S I O N S  (BARS)
                                                                   BD       TP       K
26   5   3   1     .1        .3        .6        3.        15.      G/CC     PCT    IN/HR

     DEPTH                                                             3
       0           41.07     37.57     30.28     26.54     9.58      .83     68.68
                   34.08     31.18     25.13     22.02     7.95
                   FRAGMENT                        SIEVED 10.25ROCK PERCENT 40.19
                                                                       1
       1           25.89     22.36     21.49     16.66     5.56      1.42    46.42   3.44
                   36.76     31.75     30.51     23.65     7.89      1.49    43.77    .47
                   FRAGMENT 22.68                  SIEVED  7.17ROCK PERCENT 39.69
                                                                       1
       9           22.13     20.68     20.25     17.48    11.27      1.51    43.02    .31
                   33.41     31.22     30.57     26.39    17.01      1.61    39.25    .41
                   FRAGMENT 20.23                  SIEVED 12.50ROCK PERCENT 42.02
                                                                       1
      15           23.10     21.17     20.25     18.24    14.33      1.49    43.77    .24
                   34.41     31.54     30.17     27.17    21.35      1.64    38.11    .55
                   FRAGMENT 21.73                  SIEVED 12.85ROCK PERCENT  7.26
                                                                       1
      25           19.93     18.27     15.57     14.47    11.02      1.67    36.98    .72
                   33.28     30.51     26.00     24.16    18.40      1.82    31.32    .14
                   FRAGMENT 19.35                  SIEVED 13.21ROCK PERCENT 58.44
                                                                       3
      32           16.84     15.05     13.96     12.21    10.31      1.48    44.15
                   24.92     22.27     20.66     18.07    15.25
                   FRAGMENT                        SIEVED 12.22ROCK PERCENT 80.08

       1=FIST
       2=CORE
       3=LOOSE
```

GILPIN SILT LOAM (26,05,F,b)

Location: 65' W of lane and 70' S of watershed 132 flume, SE¼ SW¼ NW¼ Sec. 5, White Eyes Twp., ARS Hydrologic Exp. Sta., Coshocton Co.
Vegetation and land use: Woods; red and white oak
Topography: Rolling upland, middle slope, 21% slope (elev. 1035)
Drainage: Well drained
Parent Material: Siltstone and silty shale, Allegheny Series, Pennsylvanian System
Described and sampled by: G. E. Kelley and G. P. Lawless

Horizon	Description
01	1-1/2 to 1/2 inch. Deciduous leaf litter.
02	1/2 to 0 inch. Organic material decomposed beyond recognition.
A1	0 to 1 inch. Very dark grayish brown (10YR 3/2) silt loam, moderate fine granular structure, friable, roots abundant, moderately rapid permeability, 5% coarse material less than 3 inches in diameter, pH 4.8, clear smooth boundary.
A2	1 to 9 inches. Light yellowish brown (10YR 6/4) silt loam, weak medium and fine subangular blocky structure, friable, roots abundant, moderate permeability, 5% coarse material less than 3 inches in diameter, pH 4.8, clear smooth boundary.
B1	9 to 15 inches. Yellowish brown (10YR 5/6) silt loam, weak medium and fine subangular blocky structure, friable, roots common, thin very patchy yellowish brown (10YR 5/4) clay films on vertical and horizontal ped surfaces, moderate permeability, 10% coarse material less than 3 inches in diameter, pH 4.8, clear smooth boundary.
B2t*	15 to 31 inches. Strong brown (7.5YR 5/6) light silty clay loam, weak coarse subangular blocky structure, friable, roots common, thin patchy brown (7.5YR 5/4) clay films on vertical and horizontal ped surfaces, moderate permeability, 45% coarse material with pockets ranging up to 70%, stone fragments ranged up to 6 inches in diameter, pH 5.0, gradual irregular boundary (depth to rock ranged from 27 to 36 inches.)
R	31 to 55 inches plus. Fractured yellowish brown (10YR 5/8) siltstone and light olive brown (2.5Y 5/4) silty shale with some fine and occasional roots extending down cracks to about 50 inches.

Remarks: This site was sampled jointly by ARS for hydrologic studies and by SCS for soil characterization. Soil conditions were moist. Texture, permeability, and stone content by volume were estimated in the field; stones measured on long axis; pH by colorimetric field indicators. The weather was cloudy and cool. This soil is a representative component of the Muskingum silt loam soils as they were previously mapped on the station. There were sections along the pit face that were greater than 50% coarse fragments. These spots would probably qualify as Berks silt loam.

*Horizon of least permeability.

GILPIN SILT LOAM (26,05,F,b)

```
      WEIGHT  PERCENT  AND  VOLUME  PERCENT  OF  WATER  RETAINED

IDENTIFICATION        T E N S I O N S  (BARS)
                                                               BD       TP       K
26   5   3   2     .1        .3        .6        3.        15.        G/CC     PCT    IN/HR

     DEPTH                                                             3
      0            38.57     38.16     29.94     23.91     11.36      .86     67.55
                   33.17     32.81     25.74     20.56      9.76
                   FRAGMENT                       SIEVED   8.35ROCK PERCENT 16.02
                                                                       1
      1            24.81     23.39     20.97     15.17      6.56     1.51     43.02     .56
                   37.46     35.31     31.66     22.90      9.90     1.58     40.38     .55
                   FRAGMENT  21.55                SIEVED   5.19ROCK PERCENT 24.53
                                                                       1
      9            21.53     19.69     19.15     15.74      9.77     1.65     37.74     .07
                   35.52     32.48     31.59     25.97     16.12     1.75     33.96     .06
                   FRAGMENT  19.33                SIEVED   7.97ROCK PERCENT 55.19
                                                                       1
     15            18.84     18.15     16.37     14.56     12.28     1.73     34.72     .16
                   32.59     31.39     28.32     25.18     21.24     1.90     28.30    1.34
                   FRAGMENT  18.05                SIEVED  11.36ROCK PERCENT 58.48
                                                                       3
     31            16.57     15.66     13.88     12.55      9.54     1.47     44.53
                   24.35     23.02     20.40     18.44     14.02
                   FRAGMENT                       SIEVED   9.36ROCK PERCENT 64.19

      1=FIST
      2=CORE
      3=LOOSE
```

BERKS LOAM (26,06,F,a)

Location: 30' W of farm lane and 100' S of field corner, SW¼ NE¼ SW¼ Sec. 4, White Eyes Twp., ARS Hydrologic Exp. Sta., Coshocton Co.
Vegetation and land use: Woods; red and white oak
Topography: Rolling upland, upper slope, 26% slope (elev. 1090)
Drainage: Well to excessive
Parent Material: Coarse-grained sandstone, Allegheny Series, Pennsylvanian System
Described and sampled by: G. E. Kelley and G. P. Lawless

Horizon	Description
01	2 to 1 inch. Deciduous leaf litter.
02	1 to 0 inch. Organic material decomposed beyond recognition.
A1	0 to 2 inches. Very dark gray (10YR 3/1) loam, moderate fine granular structure, very friable, roots abundant, moderately rapid permeability, 50% stones up to 24 inches in diameter, pH 5.2, clear smooth boundary.
A2	2 to 8 inches. Brown (10YR 5/3) loam, weak fine granular and subangular blocky structure, very friable, roots abundant, moderately rapid permeability, 50% stones up to 24 inches in diameter, pH 5.0, clear smooth boundary.
B2	8 to 20 inches. Yellowish brown (10YR 5/4) sandy loam, weak fine and medium subangular blocky structure, very friable, roots common, thin patchy light yellowish brown (10YR 6/4) clay films on vertical ped surfaces and tops of stones, moderately rapid permeability, 70% stones up to 24 inches in diameter, pH 5.0, gradual smooth boundary.
B3	20 to 27 inches. Yellowish brown (10YR 5/4) loamy sand, very weak fine subangular blocky structure, very friable, roots common, rapid permeability, 80% stones up to 24 inches in diameter, pH 5.0, gradual boundary.
C	27 to 40 inches. Yellowish brown (10YR 5/4) loamy sand and sand, structureless, roots occasional, rapid permeability, 90% stones up to 24 inches in diameter, pH 5.0, wavy boundary.
R	40 to 50 inches plus. Soft coarse grained sandstone, pale olive (5Y 6/3) broken color of rock.

Remarks: This site was sampled jointly by ARS for hydrologic studies and by SCS for soil characterization. Soil conditions were moist. Texture, permeability, and stone content by volume were estimated in the field; stones measured on long axis; pH by colorimetric field indicators. The weather was cloudy and cold. This site is representative of the Muskingum stony loam soil previously mapped on the station. However, it is not completely representative of the Berks Series, since the texture is more sandy than the allowable range.

BERKS LOAM (26,06,F,a)

```
      WEIGHT  PERCENT  AND  VOLUME  PERCENT  OF  WATER  RETAINED

IDENTIFICATION          T E N S I O N S  (BARS)
                                                                       BD        TP
26    6    3    1       .1        .3        .6        3.        15.        G/CC      PCT

      DEPTH                                                                 3
        0               29.31     29.21     18.79     17.71     7.23       1.15      56.60
                        33.70     33.59     21.60     20.36     8.31
                        FRAGMENT                       SIEVED   9.35ROCK PERCENT 42.94
                                                                            3
        2               21.89     18.26     15.93     14.07     4.91       1.44      45.66
                        31.52     26.29     22.93     20.26     7.07
                        FRAGMENT                       SIEVED   5.38ROCK PERCENT 40.37
                                                                            3
        8               16.45      9.88      8.66      9.40     2.88       1.63      38.49
                        26.81     16.10     14.11     15.32     4.69
                        FRAGMENT                       SIEVED   2.63ROCK PERCENT 33.66
                                                                            3
       20               10.50      8.92      6.79      5.96     2.69       1.60      39.62
                        16.80     14.27     10.86      9.53     4.30
                        FRAGMENT                       SIEVED   2.39ROCK PERCENT 38.49
                                                                            3
       27                9.73      6.72      4.21      3.41     2.28       1.63      38.49
                        15.85     10.95      6.86      5.55     3.71
                        FRAGMENT                       SIEVED   2.18ROCK PERCENT 31.24
                                                                            3
       40               13.72     11.34      8.49      6.62     3.31       1.60      39.62
                        21.95     18.14     13.58     10.59     5.29
                        FRAGMENT                       SIEVED   2.62ROCK PERCENT 25.91

      1=FIST
      2=CORE
      3=LOOSE
```

BERKS LOAM (26,06,F,b)

Location: 30' W of farm lane and 100' N of pine plantation, SW¼ NE¼ SW¼ Sec. 4, White Eyes Twp., ARS Hydrologic Exp. Sta., Coshocton Co.
Vegetation and land use: Woods; red and white oak
Topography: Rolling upland, ridge top, 11% slope (elev. 1080)
Drainage: Well to excessive
Parent Material: Coarse-grained sandstone, Allegheny Series, Pennsylvanian System
Described and sampled by: G. E. Kelley and G. P. Lawless

Horizon	Description
01	2 to 1 inch. Deciduous leaf litter.
02	1 to 0 inch. Organic material decomposed beyond recognition.
A1	0 to 2 inches. Very dark gray (10YR 3/1) loam, moderate fine granular structure, very friable, roots abundant, moderately rapid permeability, 65% stones up to 36 inches in diameter, pH 5.0, clear smooth boundary.
A2	2 to 7 inches. Brown (10YR 5/3) sandy loam, weak fine subangular blocky structure, very friable, roots abundant, moderately rapid permeability, 65% stones up to 36 inches in diameter, pH 5.0, clear smooth boundary.
B1	7 to 14 inches. Yellowish brown (10YR 5/4) loamy sand, weak fine and medium subangular blocky structure, very friable, roots abundant, moderately rapid permeability, 65% stones up to 36 inches in diameter, pH 5.0, gradual smooth boundary.
B2	14 to 30 inches. Yellowish brown (10YR 5/4) loamy sand, weak medium subangular blocky structure, very friable, roots common, dark surface material extends down old root channels to a depth of 20 inches, thin very patchy pale brown (10YR 6/3) clay films bridging sand grains and on tops of stones, moderately rapid permeability, 75% stones up to 24 inches in diameter, pH 5.0, gradual smooth boundary.
B3	30 to 35 inches. Yellowish brown (10YR 5/4) loamy sand, very weak medium subangular blocky structure, very friable, roots common, thin very patchy pale brown (10YR 6/3) clay films bridging sand grains and on tops of stones, rapid permeability, 85% stones up to 24 inches in diameter, pH 5.0, wavy boundary.
R	35 to 50 inches plus. Soft coarse grained sandstone underlain by an intermittent coal blossom. Roots extend through the soft sandstone layer.

Remarks: This site was sampled jointly by ARS for hydrologic studies and by SCS for soil characterization. Soil conditions were moist. Texture, permeability, and stone content by volume were estimated in the field; stones measured on long axis; pH by colorimetric field indicators. The weather was cloudy and cold. This site is representative of the Muskingum stony loam soil previously mapped on the station. However, it is not completely representative of the Berks Series, since the texture is more sandy than the allowable range.

BERKS LOAM (26,06,F,b)

```
       WEIGHT  PERCENT  AND  VOLUME  PERCENT  OF  WATER  RETAINED

IDENTIFICATION        T E N S I O N S  (BARS)
                                                                    BD        TP
26   6   3   2      .1        .3        .6        3.        15.     G/CC      PCT

     DEPTH                                                             3
      0            30.85     22.72     17.16     15.49     9.00     1.07     59.62
                   33.00     24.31     18.36     16.57     9.63
                   FRAGMENT                       SIEVED   7.92ROCK PERCENT 29.79
                                                                       3
      2            18.05     16.21     12.18      9.63     4.39     1.45     45.28
                   26.17     23.50     17.66     13.96     6.36
                   FRAGMENT                       SIEVED   5.23ROCK PERCENT 39.76
                                                                       3
      7            15.44     11.62      8.58      7.69     3.20     1.61     39.25
                   24.85     18.70     13.81     12.38     5.15
                   FRAGMENT                       SIEVED   2.60ROCK PERCENT 21.78
                                                                       3
     14            10.55      9.42      7.56      7.44     3.06     1.66     37.36
                   17.51     15.63     12.54     12.35     5.07
                   FRAGMENT                       SIEVED   2.84ROCK PERCENT 21.71
                                                                       3
     30            10.94      8.43      7.19      6.60     2.82     1.69     36.23
                   18.48     14.24     12.15     11.15     4.76
                   FRAGMENT                       SIEVED   2.71ROCK PERCENT 25.60
                                                                       3
     35             5.97      5.64      4.20      3.79     1.90     1.63     38.49
                    9.73      9.19      6.84      6.17     3.09
                   FRAGMENT                       SIEVED   1.36ROCK PERCENT  4.53

       1=FIST
       2=CORE
       3=LOOSE
```

DODGEVILLE SILT LOAM (31,01,C,a and b)

Location: Grant County; pit a NE of SW Sec. 18, T6N, R2W; pit b SW of NW Sec. 17, T6N, R2W.
Vegetation and land use: Bluegrass
Topography: Pit a, unglaciated upland, 8% slope, slight erosion; pit b, unglaciated limestone uplands, 9% slope, moderate erosion.
Drainage: Well drained
Parent Material: Pit a, loess over limestone; pit b, loess over clayey residuum from limestone.
Described and sampled by: C. L. Glocker and G. A. Schumaker

Horizon	Description
Pit a	
Ap	0 to 7 inches. Very dark brown (10YR 2/2) silt loam having moderate very fine subangular blocky structure; very friable when moist; slightly acid in reaction; abrupt smooth boundary.
A3	7 to 12 inches. Dark brown (10YR 3/3) silt loam having moderate fine granular structure; very friable when moist; medium acid in reaction; abrupt smooth boundary.
B1	12 to 18 inches. Dark yellowish brown matrix (10YR 4/4) with continuous thin clay films (10YR 3/4) silt loam having moderate fine subangular blocky structure; friable when moist; medium acid in reaction; clear smooth boundary.
B21	18 to 25 inches. Yellowish brown matrix (10YR 5/4) with thin continuous dark brown clay films (10YR 4/3) with faint bleached silt coats; silty clay loam having moderate fine subangular blocky structure; firm when moist; strongly acid in reaction; clear smooth boundary.
B22	25 to 31 inches. Yellowish brown matrix (10YR 5/4) with dark brown thin clay films (continuous) (10YR 4/3) silty clay loam; weak medium platy breaking to weak medium subangular blocky structure; firm when moist; strongly acid in reaction; clear wavy boundary.
IIB23	31 to 37 inches. Yellowish brown (10YR 5/6) clay having weak fine subangular blocky structure; very firm when moist; medium acid in reaction; clear wavy boundary.
IIC1	37 to 49 inches. (Varicolored) yellowish brown (10YR 5/8) to light brownish gray (10YR 6/2) clay having weak fine subangular blocky to structureless; extremely firm when moist; medium acid in reaction; clear wavy boundary.
IIC2	49 inches plus. Limestone with some sand.
Pit b	
Ap	0 to 6 inches. Very dark gray (10YR 3/1) silt loam having moderate very fine subangular blocky structure; very friable when moist; neutral in reaction; abrupt smooth boundary.
A3	6 to 9 inches. Dark brown (10YR 3/3) silt loam having moderate fine subangular blocky structure; very friable when moist; neutral in reaction; clear smooth boundary.
B1	9 to 15 inches. Dark yellowish brown (10YR 4/4) matrix with dark yellowish brown (10YR 3/4) thin clay films, silt loam having moderate fine subangular blocky structure; friable when moist; medium acid in reaction; clear wavy boundary.
B21	15 to 21 inches. Dark yellowish brown (10YR 4/4) matrix with dark yellowish brown (10YR 3/4) thin clay films, silty clay loam having moderate fine subangular blocky structure; firm when moist; very strongly acid; clear wavy boundary.
IIB22	21 to 29 inches. Dark brown (7.5YR 4/4) thin patchy clay films; clay; weak very fine subangular blocky structure; very firm when moist; very strongly acid; abrupt wavy boundary.
IIC1	29 to 48 inches. Dark brown (7.5YR 4/4) clay; structureless; very firm when moist.
IIR	48 inches plus. Limestone bedrock.

DODGEVILLE SILT LOAM (31,01,C,a and b)

```
      WEIGHT  PERCENT  AND  VOLUME  PERCENT  OF  WATER  RETAINED

IDENTIFICATION        T E N S I O N S  (BARS)
                                                                BD        TP      K
31   1   1   1      .1        .3        .6        3.        15.      G/CC      PCT   IN/HR

    DEPTH                                                          1
     0              25.86     22.36     20.95     19.79     14.67    1.42     46.42   7.62
                    36.72     31.75     29.74     28.10     20.83    1.59     40.00    .81
                    FRAGMENT  23.60                   SIEVED 12.13ROCK PERCENT
                                                                   1
     7              27.49     25.18     23.69     21.68     16.85    1.29     51.32    .99
                    35.46     32.48     30.56     27.96     21.73    1.48     44.15   1.02
                    FRAGMENT  26.86                   SIEVED 17.96ROCK PERCENT  .39
                                                                   1
    12              28.37     26.11     24.75     22.33     15.54    1.35     49.06   1.46
                    38.29     35.24     33.41     30.14     20.97    1.53     42.26   2.00
                    FRAGMENT  25.85                   SIEVED 12.18ROCK PERCENT
                                                                   1
    18              27.41     25.00     22.33     21.38     15.48    1.37     48.30   1.20
                    37.55     34.25     30.59     29.29     21.20    1.53     42.26   1.27
                    FRAGMENT  25.08                   SIEVED 12.13ROCK PERCENT
                                                                   1
    25              28.19     26.13     23.39     21.18     15.38    1.44     45.66    .47
                    40.59     37.62     33.68     30.49     22.14    1.62     38.87    .33
                    FRAGMENT  24.37                   SIEVED 17.28ROCK PERCENT  .61
                                                                   1
    31              29.61     28.49     27.98     27.02     20.22    1.42     46.42    .87
                    42.04     40.45     39.73     38.36     28.71    1.66     37.36    .27
                    FRAGMENT  26.61                   SIEVED 17.17ROCK PERCENT 25.66
                                                                   1
    37              29.05     27.78     24.23     20.68     11.74    1.33     49.81    .13
                    38.63     36.94     32.22     27.50     15.61    1.56     41.13    0
                    FRAGMENT  25.26                   SIEVED 29.64ROCK PERCENT 13.89

IDENTIFICATION        T E N S I O N S  (BARS)
                                                                BD        TP      K
31   1   1   2      .1        .3        .6        3.        15.      G/CC      PCT   IN/HR

    DEPTH                                                          1
     0              32.87     29.41     27.99     24.33     17.19    1.34     49.43    .40
                    44.04     39.40     37.50     32.60     23.03    1.54     41.89    .68
                    FRAGMENT  28.38                   SIEVED 14.24ROCK PERCENT
                                                                   3
     6              31.39     24.67     23.69     20.13     16.94     .99     62.64
                    31.07     24.42     23.45     19.92     16.77
                    FRAGMENT                          SIEVED 14.85ROCK PERCENT   .38
                                                                   3
     9              32.47     25.73     24.41     20.79     16.47     .97     63.40
                    31.49     24.95     23.67     20.16     15.97
                    FRAGMENT                          SIEVED 15.46ROCK PERCENT   .84
                                                                   3
    15              30.92     25.47     25.40     20.93     16.21    1.09     58.87
                    33.70     27.76     27.68     22.81     17.66
                    FRAGMENT                          SIEVED 14.75ROCK PERCENT  6.19
                                                                   3
    21              34.93     33.70     33.00     31.95     23.33    1.04     60.75
                    36.32     35.04     34.32     33.22     24.26
                    FRAGMENT                          SIEVED 25.55ROCK PERCENT   .14
                                                                   3
    29              36.53     36.09     35.26     34.90     26.49    1.09     58.87
                    39.81     39.33     38.43     38.04     28.87
                    FRAGMENT                          SIEVED 26.19ROCK PERCENT   .25
```

JUDSON SILT LOAM (WORTHEN) (31,03,P,a and C,a)

Location: Grant County: Pit P,a NW of SW Sec. 18, T6N, R2W; pit C,a SW of NW Sec. 17, T6N, R2W.
Vegetation and land use: Pit P,a bluegrass; pit C,a quackgrass and brome.
Topography: Pit P,a drainageway in uplands, 1% slope; pit C,a drainageway in unglaciated limestone-controlled upland, 1% slope.
Drainage: Well drained
Parent Material: Deep silty alluvium
Described and sampled by: C. L. Glocker and G. A. Schumaker

Horizon	Description
Pit P,a	
A1	0 to 12 inches. Very dark brown (10YR 2/2) silt loam having weak fine platy breaking to weak very fine subangular blocky structure; friable when moist; slightly acid in reaction; gradual wavy boundary.
A12	12 to 37 inches. Very dark brown (10YR 2/2) with some thin brown (10YR 4/2) layers; silt loam; weak medium platy breaking to weak fine subangular blocky structure; friable when moist; strongly acid in reaction; clear wavy boundary.
A13	37 to 60 inches. Stratified layers of very dark brown (10YR 2/2) and dark grayish brown (10YR 4/2) silt loam; weak fine platy structure; firm when moist; very strongly acid in reaction.
Pit C,a	
A11	0 to 8 inches. Very dark brown (10YR 2/2) silt loam; weak medium platy structure; friable when moist; neutral in reaction; clear wavy boundary.
A12	8 to 14 inches. Very dark brown (10YR 2/2) silt loam; moderate medium granular structure; friable when moist; clear wavy boundary.
A13	14 to 42 inches. Very dark brown (10YR 2/2) silt loam; weak medium platy structure; friable when moist; slightly acid in reaction; gradual wavy boundary.
A14	42 to 60 inches. Black (10YR 2/1) silt loam; weak coarse platy to structureless; firm when moist; very strongly acid in reaction.

FENNIMORE, WISCONSIN

JUDSON SILT LOAM (WORTHEN) (31,03,P,a and C,a)

WEIGHT PERCENT AND VOLUME PERCENT OF WATER RETAINED

IDENTIFICATION	TENSIONS (BARS)							
						BD	TP	K
31 3 1 1	.1	.3	.6	3.	15.	G/CC	PCT	IN/HR
DEPTH						1		
0	35.91	31.05	27.22	22.45	11.81	1.33	49.81	1.33
	47.76	41.29	36.20	29.85	15.70	1.36	48.68	.98
	FRAGMENT	31.92		SIEVED	11.11ROCK	PERCENT	.08	
						1		
12	30.66	26.60	24.63	21.66	12.04	1.26	52.45	1.51
	38.63	33.51	31.03	27.29	15.17	1.32	50.19	.98
	FRAGMENT	28.17		SIEVED	11.57ROCK	PERCENT	5.53	
						1		
37	33.33	28.02	25.75	21.42	12.08	1.32	50.19	.72
	43.99	36.98	33.99	28.27	15.94	1.39	47.55	.71
	FRAGMENT	27.69		SIEVED	10.37ROCK	PERCENT	2.58	

IDENTIFICATION	TENSIONS (BARS)							
						BD	TP	K
31 3 2 1	.1	.3	.6	3.	15.	G/CC	PCT	IN/HR
DEPTH						1		
0	29.35	24.18	22.86	19.38	12.50	1.36	48.68	2.50
	39.91	32.88	31.08	26.35	17.00	1.45	45.28	8.31
	FRAGMENT	21.27		SIEVED	10.04ROCK	PERCENT		
						1		
8	29.05	25.72	25.24	19.99	12.05*	1.36	48.68	4.28
	39.50	34.97	34.32	27.18	16.38	1.42	46.42	4.17
	FRAGMENT	25.26		SIEVED	7.58ROCK	PERCENT	.94	
						1		
14	32.30	27.40	25.23	20.31	11.58**	1.33	49.81	1.47
	42.95	36.44	33.55	27.01	15.40	1.39	47.55	1.31
	FRAGMENT	26.82		SIEVED	8.71ROCK	PERCENT	7.50	
						1		
42	35.26	28.89	27.39	22.12	13.82	1.30	50.94	.32
	45.83	37.55	35.60	28.75	17.96	1.38	47.92	.85
	FRAGMENT	27.34		SIEVED	14.28ROCK	PERCENT	4.90	

*RERUN AS 12.25
**RERUN AS 12.45

1=FIST
2=CORE
3=LOOSE

TAMA SILT LOAM (31,04,C,a)

Location: NW of NW Section 17, T6N, R2W, Grant County
Vegetation and land use: Alfalfa
Topography: Driftless upland, 3% slope
Drainage: Well drained
Parent Material: Loess
Described and sampled by: C. L. Glocker and G. A. Schumaker

Horizon	Description
A1	0 to 8 inches. Very dark brown (10YR 2/2) silt loam having moderate fine granular structure; very friable when moist; neutral in reaction; abrupt smooth boundary.
A3	8 to 14 inches. Dark brown (10YR 3/3) silt loam; moderate fine granular structure; very friable when moist; medium acid in reaction; abrupt smooth boundary.
B1	14 to 19 inches. Dark brown (10YR 4/3) matrix with dark brown (10YR 3/3) continuous clay films; silt loam; moderate fine subangular blocky structure; friable when moist; strongly acid in reaction; clear wavy boundary.
B21	19 to 25 inches. Dark yellowish brown (10YR 4/4) matrix with dark brown (10YR 3/3) continuous clay films; silt loam having moderate very fine subangular blocky structure; firm when moist; very strongly acid in reaction; clear wavy boundary.
B22	25 to 33 inches. Dark brown (10YR 4/3) matrix with dark yellowish brown (10YR 3/4) very thin continuous clay films; silty clay loam; moderate very fine subangular blocky structure; firm when moist; very strongly acid in reaction; clear wavy boundary.
B23	33 to 39 inches. Yellowish brown (10YR 5/4) matrix with dark yellowish brown (10YR 3/4) continuous thin clay films; silty clay loam; moderate fine subangular blocky structure; firm when moist; strongly acid in reaction; gradual wavy boundary.
B31	39 to 50 inches. Yellowish brown (10YR 5/4) clay films on vertical ped faces only; silt loam; weak coarse prismatic to weak coarse angular blocky structure; firm when moist; strongly acid in reaction; gradual wavy boundary.
B32	50 to 58 inches. (Dry) few fine faint mottles, some patchy clay films on cleavage plane (Moist) Yellowish brown (10YR 5/4) clay flows in old root channels; silt loam; weak coarse angular blocky to structureless; firm when moist; medium acid in reaction; gradual wavy boundary.
C1	58 to 70 inches plus. Yellowish brown (10YR 5/4) silt loam; structureless; firm when moist; medium acid in reaction. (Color, dry) some patchy clay flows on cleavage planes.

TAMA SILT LOAM (31,04,C,a)

WEIGHT PERCENT AND VOLUME PERCENT OF WATER RETAINED

IDENTIFICATION	TENSIONS (BARS)							
31 4 2 1	.1	.3	.6	3.	15.	BD G/CC	TP PCT	K IN/HR
DEPTH						1		
0	30.18	26.16	20.89	20.11	12.75	1.35	49.06	.73
	40.74	35.31	28.20	27.14	17.21	1.44	45.66	.95
	FRAGMENT	27.38		SIEVED	15.13ROCK	PERCENT	.87	
						1		
8	28.01	27.35	21.22	20.23	12.65	1.34	49.43	1.11
	37.53	36.64	28.43	27.10	16.95	1.44	45.66	.87
	FRAGMENT	27.25		SIEVED	15.04ROCK	PERCENT	8.71	
						1		
14	28.57	26.20	21.49	20.51	13.58	1.29	51.32	2.44
	36.85	33.79	27.72	26.45	17.51	1.40	47.17	1.76
	FRAGMENT	27.02		SIEVED	15.67ROCK	PERCENT	.84	
						1		
19	29.69	26.54	22.59	21.46	15.13	1.31	50.57	.86
	38.89	34.76	29,59	28.11	19.82	1.43	46.04	1.23
	FRAGMENT	26.41		SIEVED	17.40ROCK	PERCENT	1.64	
						1		
25	30.14	27.39	21.77	20.74	16.79	1.28	51.70	.96
	38.57	35.05	27.86	26.54	21.49	1.45	45.28	2.75
	FRAGMENT	27.29		SIEVED	17.11ROCK	PERCENT	.38	
						1		
33	29.04	26.73	20.69	19.10	15.62	1.31	50.57	2.48
	38.04	35.01	27.10	25.02	20.46	1.45	45.28	2.55
	FRAGMENT	27.45		SIEVED	11.43ROCK	PERCENT		
					(14.02)	1		
39	33.65	28.57	22.03	20.56	15.30	1.39	47.55	.39
	46.77	39.71	30.62	28.57	21.26	1.55	41.51	1.13
	FRAGMENT	28.92		SIEVED	15.58ROCK	PERCENT	4.77	
						1		
50	33.58	30.03	23.56	21.75	14.61	1.44	45.66	.04
	48.35	43.24	33.92	31.32	21.03	1.57	40.75	.21
	FRAGMENT	29.23		SIEVED	12.63ROCK	PERCENT	2.81	

1=FIST
2=CORE
3=LOOSE

FENNIMORE, WISCONSIN

TAMA SILT LOAM (31,04,C,b)

Location: SW of NE Section 18, T6N, R2W, Grant County
Vegetation and land use: Quackgrass
Topography: Unglaciated upland, 1% slope
Drainage: Well drained
Parent Material: Deep Peorian loess
Described and sampled by: C. L. Glocker and G. A. Schumaker

Horizon	Description
Ap	0 to 8 inches. Very dark brown (10YR 2/2) silt loam having moderate fine granular structure; very friable when moist; slightly acid in reaction; abrupt smooth boundary.
A3	8 to 13 inches. Dark brown (10YR 3/3) silt loam having moderate fine granular structure; very friable when moist; medium acid in reaction; abrupt smooth boundary.
B1	13 to 18 inches. Dark yellowish brown (10YR 3/4) matrix with very dark grayish brown (10YR 3/2) continuous clay films; silt loam; moderate very fine subangular blocky structure; friable when moist; strongly acid in reaction; clear wavy boundary.
B21	18 to 25 inches. Dark brown (10YR 4/3) matrix with dark brown (10YR 3/3) continuous thin clay films; silt loam; moderate very fine subangular blocky structure; firm when moist; very strongly acid in reaction; clear wavy boundary.
B22	25 to 31 inches. Dark brown (10YR 4/3) matrix with dark brown (10YR 3/3) continuous clay films; light silty clay loam; moderate very fine subangular blocky structure; firm when moist; very strongly acid in reaction.
B23	31 to 37 inches. Dark brown (10YR 4/3) matrix with few thin patchy clay films; heavy silt loam; moderate fine subangular blocky structure; firm when moist; strongly acid in reaction; clear wavy boundary.
B3	37 to 48 inches. Yellowish brown (10YR 5/4) matrix with a few patchy clay films on vertical ped faces only; silt loam; weak coarse prismatic breaking to weak coarse angular blocky structure; firm when moist; medium acid in reaction; clear wavy boundary.
C1	48 to 60 inches plus. Yellowish brown (10YR 5/4) thin clay flows in old root channels; silt loam; structureless; medium acid in reaction.

TAMA SILT LOAM (31,04,C,b)

WEIGHT PERCENT AND VOLUME PERCENT OF WATER RETAINED

IDENTIFICATION TENSIONS (BARS)

31 4 2 2	.1	.3	.6	3.	15.	BD G/CC	TP PCT	K IN/HR
DEPTH						1		
0	27.74	25.22	20.20	20.02	12.61	1.31	50.57	.27
	36.33	33.03	26.46	26.22	16.51	1.42	46.42	.35
	FRAGMENT	26.94		SIEVED	12.38ROCK	PERCENT	.77	
						1		
8	29.38	26.45	21.46	20.71	13.06	1.25	52.83	2.66
	36.72	33.06	26.82	25.88	16.32	1.35	49.06	1.53
	FRAGMENT	27.24		SIEVED	14.28ROCK	PERCENT	.32	
						1		
13	27.89	25.51	21.42	20.36	13.77	1.27	52.08	2.98
	35.42	32.39	27.20	25.85	17.48	1.36	48.68	2.80
	FRAGMENT	25.95		SIEVED	14.23ROCK	PERCENT	.43	
						1		
18	30.05	27.30	23.07	20.32	14.44	1.31	50.57	2.79
	39.36	35.76	30.22	26.61	18.91	1.45	45.28	3.43
	FRAGMENT	27.29		SIEVED	15.64ROCK	PERCENT	.42	
						1		
25	29.44	27.05	21.52	20.99	16.08	1.33	49.81	1.24
	39.15	35.97	28.62	27.91	21.38	1.49	43.77	1.65
	FRAGMENT	27.73		SIEVED	16.31ROCK	PERCENT	.73	
						1		
31	28.91	27.19	24.22	21.95	16.60	1.26	52.45	2.56
	36.42	34.25	30.51	27.65	20.91	1.43	46.04	2.29
	FRAGMENT	27.90		SIEVED	14.03ROCK	PERCENT	1.12	
						1		
37	31.40	27.88	22.46	21.56	16.08	1.42	46.42	9.59
	44.58	39.58	31.89	30.61	22.83	1.63	38.49	0
	FRAGMENT	28.98		SIEVED	13.69ROCK	PERCENT	4.05	
						1		
48	30.74	28.27	26.61	23.85	18.15	1.44	45.66	.42
	44.26	40.70	38.31	34.34	26.13	1.66	37.36	.39
	FRAGMENT	28.80		SIEVED	14.87ROCK	PERCENT	6.54	

1=FIST
2=CORE
3=LOOSE

LACROSSE, WISCONSIN

DUBUQUE SILT LOAM (32,01,C,a and b)

Location: SE of SW Section 27, T16N, R7W, La Crosse County
Vegetation and land use: Alfalfa and quackgrass
Topography: Unglaciated limestone-controlled uplands, 10% slope
Drainage: Well drained
Parent Material: Loess over clay residuum from limestone.
Described and sampled by: C. L. Glocker and G. A. Schumaker

Horizon	Description
Pit a	
A1	0 to 5 inches. Very dark gray (10YR 3/1) silt loam having moderate very fine subangular blocky structure; friable when moist; slightly acid in reaction; abrupt smooth boundary.
A2	5 to 8 inches. Brown (10YR 5/3) silt loam having moderate fine platy structure; friable when moist; slightly acid in reaction; abrupt smooth boundary.
B1	8 to 13 inches. Yellowish brown (10YR 5/4) matrix with dark yellowish brown (10YR 3/4) continuous clay films; silt loam; moderate very fine subangular blocky structure; firm when moist; strongly acid in reaction; clear wavy boundary.
B21	13 to 20 inches. Yellowish brown (10YR 5/4) matrix with very thin clay films; silt loam; weak fine subangular blocky structure; firm when moist; very strongly acid in reaction; clear wavy boundary.
B22	20 to 26 inches. Yellowish brown (10YR 5/4) with dark brown (10YR 4/3) continuous clay films; silty clay loam; moderate medium subangular blocky structure; firm when moist; abrupt wavy boundary.
B23	26 to 38 inches. Yellowish red (5YR 4/8) thin patchy clay films; clay; weak very fine subangular blocky structure; very firm when moist; strongly acid in reaction; abrupt wavy boundary.
R	38 inches plus. Limestone.
Pit b	
Ap	0 to 7 inches. Dark gray (10YR 4/1) silt loam, moderate very fine subangular blocky structure; friable when moist; neutral in reaction; abrupt smooth boundary.
B1	7 to 13 inches. Yellowish brown (10YR 5/4) matrix with dark yellowish brown (10YR 3/4) continuous clay films; silt loam; moderate very fine subangular blocky structure; firm when moist; neutral in reaction; clear smooth boundary.
B21	13 to 22 inches. Yellowish brown (10YR 5/4) matrix with dark yellowish brown (10YR 3/4) continuous clay films; silt loam; moderate fine subangular blocky structure; firm when moist; clear wavy boundary.
IIB22	22 to 25 inches. Dark brown (7.5YR 4/4) with thin continuous dark brown clay films; gritty silt loam; moderate fine subangular blocky structure; very firm when moist; strongly acid in reaction; clear wavy boundary.
B23	25 to 30 inches. Yellowish red (10YR 4/6) thin patchy clay films; gritty clay; weak fine subangular blocky structure; effervescent when moist; medium acid in reaction; abrupt wavy boundary.
R	30 inches plus. Limestone.

LACROSSE, WISCONSIN

DUBUQUE SILT LOAM (32,01,C,a and b)

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     WEIGHT  PERCENT  AND  VOLUME  PERCENT  OF  WATER  RETAINED

IDENTIFICATION         T E N S I O N S  (BARS)
                                                                  BD        TP      K
32   1   2   1     .1       .3       .6       3.       15.       G/CC      PCT    IN/HR

     DEPTH                                                         1
      0            39.81    34.37    30.69    22.83      9.79    1.32     50.19    .55
                   52.54    45.36    40.51    30.13     12.92    1.39     47.55    .52
                   FRAGMENT 34.53               SIEVED 11.93ROCK PERCENT   2.63
                                                                   1
      5            25.09    23.42    21.63    17.89      7.21    1.41     46.79   1.12
                   35.37    33.02    30.49    25.22     10.16    1.49     43.77   1.10
                   FRAGMENT 25.87               SIEVED  9.00ROCK PERCENT    .58
                                                                   1
      8            26.97    25.34    23.29    20.91     11.22    1.40     47.17    .83
                   37.75    35.47    32.60    29.27     15.70    1.53     42.26   1.34
                   FRAGMENT 25.97               SIEVED 11.73ROCK PERCENT    .39
                                                                   1
     13            30.35    26.57    24.43    22.26     15.32    1.44     45.66   1.69
                   43.70    38.26    35.17    32.05     22.06    1.57     40.75    .26
                   FRAGMENT 27.23               SIEVED 15.04ROCK PERCENT   2.83
                                                                   3
     20            27.08    24.13    23.15    20.45     14.33    1.23     53.58
                   33.30    29.67    28.47    25.15     17.62
                   FRAGMENT                     SIEVED 12.65ROCK PERCENT   1.32
                                                                   3
     26            30.91    29.60    29.46    25.12     24.04    1.14     56.98
                   35.23    33.74    33.58    28.63     27.40
                   FRAGMENT                     SIEVED 20.00ROCK PERCENT   7.05
                                                      (19.07)

IDENTIFICATION         T E N S I O N S  (BARS)
                                                                  BD        TP      K
32   1   2   2     .1       .3       .6       3.       15.       G/CC      PCT    IN/HR

     DEPTH                                                         1
      0            29.10    26.97    24.76    19.81     12.99    1.31     50.57    .72
                   38.12    35.33    32.43    25.95     17.01    1.35     49.06    .08
                   FRAGMENT 28.03               SIEVED  9.64ROCK PERCENT
                                                      (13.89)      1
      7            29.82    25.69    23.98    19.92     12.96    1.36     48.68   1.35
                   40.55    34.93    32.61    27.09     17.62    1.51     43.02   1.23
                   FRAGMENT 26.55               SIEVED 11.50ROCK PERCENT    .47
                                                                   1
     13            30.36    26.79    25.64    21.35     14.06    1.41     46.79    .31
                   42.80    37.77    36.15    30.10     19.82    1.56     41.13    .15
                   FRAGMENT 27.04               SIEVED 10.35ROCK PERCENT
                                                                   1
     22            22.29    19.91    16.33    14.04     10.63    1.63     38.49    .16
                   36.33    32.45    26.61    22.88     17.32    1.73     34.72    .86
                   FRAGMENT 19.95               SIEVED  8.91ROCK PERCENT   7.29
                                                                   3
     25            34.09    33.29    32.92    28.57     22.82    1.06     60.00
                   36.13    35.28    34.89    30.28     24.18
                   FRAGMENT                     SIEVED 19.64ROCK PERCENT  45.07


         1=FIST
         2=CORE
         3=LOOSE
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FAYETTE SILT LOAM (SEATON) (32,02,C,a)

Location: NW of NW Section 34, T16N, R7W, LaCrosse County
Vegetation and land use: Alfalfa and quackgrass
Topography: Unglaciated limestone-controlled uplands, 1% slope
Drainage: Well drained
Parent Material: Deep coarse loess
Described and sampled by: C. L. Glocker and G. A. Schumaker

Horizon	Description
Ap	0 to 12 inches. Dark grayish brown (10YR 4/2) to very dark grayish brown (10YR 3/2) silt loam; weak fine granular structure; friable when moist; neutral in reaction; abrupt smooth boundary.
B1	12 to 19 inches. Yellowish brown (10YR 5/4) matrix with thin clay dark yellowish brown (10YR 3/4) films; silt loam; moderate very fine subangular blocky structure; firm when moist; neutral in reaction; clear wavy boundary.
B21	19 to 30 inches. Dark yellowish brown (10YR 4/4) matrix with dark yellowish brown clay films; silt loam; moderate fine subangular blocky structure; firm when moist; slightly acid in reaction; clear wavy boundary.
B22	30 to 39 inches. Yellowish brown (10YR 5/4) matrix with dark yellowish brown (10YR 3/4) continuous clay films; heavy silt loam; moderate fine subangular blocky structure; firm when moist; medium acid in reaction; clear wavy boundary.
B23	39 to 48 inches. Dark brown (10YR 4/3) matrix with dark yellowish brown (10YR 3/4) thin patchy clay films; silt loam; weak medium prismatic breaking to weak medium angular blocky structure; firm when moist; strongly acid in reaction; clear wavy boundary.
B3	48 to 58 inches. Yellowish brown (10YR 5/4) and light yellowish brown (10YR 6/4) thin clay films; silt loam with weak coarse prismatic breaking to weak coarse angular blocky structure; firm when moist; strongly acid in reaction; clear wavy boundary.
C	58 to 70 inches plus. Light yellowish brown (10YR 6/4) silt loam, structureless; firm when moist; medium acid in reaction.

FAYETTE SILT LOAM (SEATON) (32,02,C,a)

WEIGHT PERCENT AND VOLUME PERCENT OF WATER RETAINED

IDENTIFICATION	TENSIONS (BARS)							
32 2 2 1	.1	.3	.6	3.	15.	BD G/CC	TP PCT	K IN/HR
DEPTH						1		
0	31.22	28.03	24.38	21.69	8.47	1.42	46.42	.20
	44.33	39.80	34.61	30.79	12.02	1.47	44.53	1.30
	FRAGMENT	28.13		SIEVED	6.56ROCK	PERCENT		
						1		
12	30.92	27.16	26.50	22.38	10.24	1.34	49.43	.31
	41.43	36.39	35.51	29.98	13.72	1.48	44.15	.15
	FRAGMENT	29.35		SIEVED	9.23ROCK	PERCENT	.39	
						1		
19	30.41	26.24	25.36	21.73	13.46	1.41	46.79	.82
	42.87	36.99	35.75	30.63	18.97	1.54	41.89	.25
	FRAGMENT	27.48		SIEVED	12.28ROCK	PERCENT	.72	
						1		
30	30.11	27.27	25.74	23.24	10.13	1.38	47.92	1.43
	41.55	37.63	35.52	32.07	13.97	1.47	44.53	.31
	FRAGMENT	26.90		SIEVED	10.98ROCK	PERCENT	2.48	
						3		
39	29.43	28.62	27.67	24.07	13.89	1.28	51.70	
	37.67	36.63	35.41	30.80	17.77			
	FRAGMENT			SIEVED	11.48ROCK	PERCENT	.45	
						3		
48	27.87	26.97	25.14	21.42	8.86	1.45	45.28	
	40.41	39.10	36.45	31.05	12.84			
	FRAGMENT			SIEVED	9.79ROCK	PERCENT	1.67	

1=FIST
2=CORE
3=LOOSE

LACROSSE, WISCONSIN

FAYETTE SILT LOAM (SEATON) (32,02,C,b)

Location: NW of NE Section 34, T16N, R7W, LaCrosse County
Vegetation and land use: Alfalfa and quackgrass
Topography: Unglaciated limestone-controlled upland, 3% slope
Drainage: Well drained
Parent Material: Deep coarse loess
Described and sampled by: C. L. Glocker and G. A. Schumaker

Horizon	Description
Ap	0 to 8 inches. Dark grayish brown (10YR 4/2) silt loam having weak medium platy breaking to moderate very fine subangular blocky structure; friable when moist; slightly acid in reaction; abrupt smooth boundary.
B1	8 to 12 inches. Yellowish brown (10YR 5/4) matrix with thin patchy clay silt loam; moderate very fine subangular blocky structure; firm when moist; slightly acid in reaction; clear smooth boundary.
B21	12 to 16 inches. Yellowish brown (10YR 5/4) with dark yellowish brown clay films (10YR 3/4); silt loam; moderate fine subangular blocky structure; firm when moist; medium acid in reaction; gradual wavy boundary.
B22	16 to 25 inches. Yellowish brown (10YR 5/4) matrix with dark yellowish brown (10YR 3/4) continuous clay films; heavy silt loam; moderate fine to medium subangular blocky structure; firm when moist; strongly acid in reaction; gradual wavy boundary.
B23	25 to 32 inches. Yellowish brown (10YR 5/4) matrix with dark yellowish brown (10YR 3/4) thin continuous clay films; silt loam; moderate medium subangular blocky structure; firm when moist; very strongly acid in reaction; gradual wavy boundary.
B31	32 to 44 inches. Yellowish brown (10YR 5/4) matrix with dark yellowish brown (10YR 3/4) thin continuous clay films; silt loam; weak medium subangular blocky structure; firm when moist; strongly acid in reaction; gradual wavy boundary.
B32	44 to 57 inches. Yellowish brown (10YR 5/4) patchy clay films; silt loam; weak coarse prismatic breaking to weak coarse subangular blocky structure; firm when moist; strongly acid in reaction; gradual wavy boundary.
C1	57 to 72 inches plus. Yellowish brown (10YR 5/4) clay flows in root channels and cracks; silt loam; structureless; medium acid in reaction.

FAYETTE SILT LOAM (SEATON) (32,02,C,b)

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      WEIGHT  PERCENT  AND  VOLUME  PERCENT  OF  WATER  RETAINED

IDENTIFICATION        T E N S I O N S  (BARS)
                                                              BD       TP        K
32   2   2   2     .1       .3       .6       3.      15.     G/CC      PCT     IN/HR

     DEPTH                                                      1
      0          31.15    28.24    27.16    18.47     7.96    1.35    49.06     .20
                 42.05    38.12    36.66    24.93    10.74    1.38    47.92     .12
                 FRAGMENT 26.71               SIEVED  7.05ROCK PERCENT  .49
                                                                1
      8          29.68    26.82    24.59    20.68    13.50    1.47    44.53     .26
                 43.62    39.42    36.14    30.39    19.84    1.54    41.89     .17
                 FRAGMENT 24.49               SIEVED 12.98ROCK PERCENT  .64
                                                                1
     12          26.44    25.58    23.71    19.40     9.77    1.44    45.66     .67
                 38.07    36.83    34.14    27.93    14.06    1.51    43.02     .60
                 FRAGMENT 25.34               SIEVED  9.23ROCK PERCENT 2.49
                                                                1
     16          29.21    25.67    24.87    19.91    13.93    1.42    46.42     .86
                 41.47    36.45    35.31    28.27    19.78    1.47    44.53     .85
                 FRAGMENT 26.99               SIEVED 15.46ROCK PERCENT  .58
                                                                1
     25          26.33    25.51    25.42    20.52    14.00    1.34    49.43     .40
                 35.28    34.18    34.06    27.49    18.76    1.38    47.92     .48
                 FRAGMENT 25.33               SIEVED 12.68ROCK PERCENT  .39
                                                                1
     32          28.45    27.85    26.80    21.89    14.23    1.38    47.92     .45
                 39.26    38.43    36.98    30.20    19.63    1.44    45.66     .32
                 FRAGMENT 27.87               SIEVED 10.28ROCK PERCENT
                                                                3
     44          29.56    26.69    26.15    20.86    13.65    1.28    51.70
                 37.83    34.16    33.47    26.70    17.47
                 FRAGMENT                     SIEVED 15.16ROCK PERCENT  .63


      1=FIST
      2=CORE
      3=LOOSE
```

BAXTER GRAVELLY SILT LOAM (33,01,P,a and b)

Location: Pit a, Watershed W-3 (C. M. Henderson), W of old weir, SE¼ SW¼ Sec. 20, T19N R31W;
Pit b, Watershed W-II (C. M. Henderson), SE¼ SW¼ Sec. 20, T19N R31W.
Vegetation and land use: Native pasture
Topography: Pit a, rolling; pit b, gently sloping.
Drainage: Well drained
Parent Material: Cherty limestone
Described and sampled by: O. R. Carter and G. A. Schumaker

Horizon	Description
Pit a	
A1	0 to 3 inches. Brown (7.5YR 4/2) gravelly silt loam; weak fine granular; friable; common gravel and chert fragments 1/4" to 1", few to 4"; many fine roots; pH 6.0; clear smooth boundary.
A3	3 to 8 inches. Reddish brown (5YR 4/4) cherty silt loam; weak fine granular; very friable; common chert fragments 1/4" to 1"; common fine roots; pH 6.0; clear smooth boundary.
B1	8 to 15 inches. Yellowish red (5YR 4/6) cherty silty clay loam; weak medium subangular blocky structure; friable; slightly sticky; few fine roots; common chert fragments 1/4" to 1"; many pores; no clay films; pH 5.5; clear smooth boundary.
B2t	15 to 28 inches. Red (2.5YR 4/8) cherty heavy silty clay loam; moderate medium subangular blocky; firm; sticky, slightly plastic; clay film on peds; about 30% chert fragments 1/4" to 1"; few roots; pH 5.5; abrupt wavy boundary.
R1	28 to 37 inches. Ruptic layer--hard chert ledge with red heavy silty clay loam through cracks; clay film continuous down sides of chert fragments; abrupt wavy boundary.
R2	37 to 47 inches. Hard chert; more fractured than above layer, also softer; more porous; honeycombed; coated with red silty clay.
Pit b	
Ap	0 to 5 inches. Brown (7.5YR 4/2) cherty silt loam; weak fine granular; friable; about 30% fragments 1/4" to 3"; many fine roots; pH 7.0; clear smooth boundary.
A3	5 to 11 inches. Brown (7.5YR 5/4) cherty silt loam; weak medium subangular blocky; friable; slightly sticky; common fine roots; 30% fragments 1/4" to 3"; no clay films; clear smooth boundary.
B11	11 to 18 inches. Yellowish red (5YR 5/6) heavy cherty silt loam; weak medium subangular blocky; friable; slightly sticky; few roots; 45% chert fragments 1/4" to 4"; no clay films; pH 6.0; clear wavy boundary.
B12	18 to 26 inches. Yellowish red (5YR 4/6) heavy cherty silt loam; weak medium subangular blocky; friable; slightly sticky; few fine roots; no clay films observed; many fine chert fragments; few fine concretions, 60% fragments, some to 4"; pH 6.0; abrupt wavy boundary.
B2t	26 to 34 inches. Red (2.5YR 4/6) cherty silty clay; moderate fine subangular blocky; firm; sticky; continuous clay films on peds; no roots; 45% chert fragments 1/4" to 1"; pH 5.5; abrupt wavy boundary.
R	34 inches plus. Hard chert with red silty clay in cracks, voids.

BAXTER GRAVELLY SILT LOAM (33,01,P,a and b)

WEIGHT PERCENT AND VOLUME PERCENT OF WATER RETAINED

IDENTIFICATION	TENSIONS (BARS)							
33 1 1 1	.1	.3	.6	3.	15.	BD G/CC	TP PCT	K IN/HR
DEPTH						3		
0	29.62	25.46	22.89	17.64	6.20	1.35	49.06	
	39.98	34.37	30.90	23.81	8.37			
	FRAGMENT			SIEVED	9.45ROCK	PERCENT	29.02	
						1		
3	27.66	20.26	19.02	18.18	9.68	1.49	43.77	.96
	41.21	30.18	28.33	27.08	14.42	1.61	39.25	.66
	FRAGMENT	22.84		SIEVED	5.13ROCK	PERCENT	16.00	
					(6.41)	1		
8	26.39	21.35	18.28	16.98	5.83	1.47	44.53	1.22
	38.79	31.38	26.87	24.96	8.57	1.57	40.75	4.79
	FRAGMENT	21.60		SIEVED	10.12ROCK	PERCENT	36.00	
						1		
15	23.33	20.16	17.09	15.22	7.64	1.50	43.40	
	34.99	30.24	25.63	22.83	11.46	1.76	33.58	
	FRAGMENT	21.99		SIEVED	9.37ROCK	PERCENT	71.05	

IDENTIFICATION	TENSIONS (BARS)						
33 1 1 2	.1	.3	.6	3.	15.	BD G/CC	TP PCT
DEPTH						3	
0	42.13	29.23	24.45	18.93	10.49	1.26	52.45
	53.08	36.82	30.80	23.85	13.21		
	FRAGMENT			SIEVED	9.65ROCK	PERCENT	54.70
						3	
5	23.22	17.81	14.08	13.19	5.16	1.50	43.40
	34.83	26.71	21.12	19.78	7.74		
	FRAGMENT			SIEVED	5.40ROCK	PERCENT	61.39
						3	
11	21.40	17.04	13.85	11.04	4.85	1.54	41.89
	32.95	26.24	21.32	17.00	7.46		
	FRAGMENT			SIEVED	7.05ROCK	PERCENT	61.33
						3	
18	17.46	15.56	13.49	12.23	6.30	1.68	36.60
	29.33	26.14	22.66	20.54	10.58		
	FRAGMENT			SIEVED	5.75ROCK	PERCENT	78.43
						3	
26	22.49	19.74	18.57	17.15	10.07	1.41	46.79
	31.71	27.83	26.18	24.18	14.19		
	FRAGMENT			SIEVED	10.50ROCK	PERCENT	62.19

1=FIST
2=CORE
3=LOOSE

BAXTER STONY SILT LOAM (33,02,P,a and b)

Location: Pit a, Watershed W-3 (C. M. Henderson), W of weir, SW¼ SW¼ Sec. 20, T19N R31W;
Pit b, Watershed W-IV (Mary J. Greer), SW¼ SW¼ Sec. 34, T19N R31W.
Vegetation and land use: Pit a, native pasture; pit b, hardwood forest, pastured.
Topography: Pit a, rolling, 3% slope; pit b, hilly.
Drainage: Well drained
Parent Material: Cherty limestone
Described and sampled by: O. R. Carter and G. A. Schumaker

Horizon	Description
Pit a	
Ap	0 to 5 inches. Very dark grayish brown (10YR 3/2) cherty silt loam; weak fine granular; very friable; many fine roots; about 30% angular chert fragments, 1/2" to 4" across; surface cover of about 50% angular chert fragments, 3" to 18"; pH 6.5; clear smooth boundary.
A2	5 to 12 inches. Yellowish brown (10YR 5/4) cherty silt loam; weak fine granular; friable; many fine roots; about 30% angular chert fragments 1/4" to 3" in diam.; pH 6.0; clear smooth boundary.
B21t	12 to 21 inches. Strong brown (7.5YR 5/6) cherty silty clay loam; weak medium subangular blocky; friable; slightly sticky; few fine roots, about 40% chert fragments 1/4" to 3"; thin discontinuous clay films on peds, chert fragments; pH 6.0; clear smooth boundary.
B22t	21 to 29 inches. Yellowish red (5YR 4/6) cherty silty clay loam; weak medium subangular blocky structure; friable; slightly sticky; 70% chert fragments 1/4" to 3"; clay film on peds, chert fragments; few fine roots; pH 6.0; clear smooth boundary.
B23t	29 to 33 inches. Red (2.5YR 4/8), common fine faint strong brown mottles, cherty silty clay; moderate medium subangular blocky structure; firm; sticky; slightly plastic; clay films on peds; no roots; about 50% chert fragments 1/4" to 3"; pH 6.0; abrupt boundary.
R	33 inches plus. Angular chert with material of the B23t in voids, cracks; hard.
Pit b	
01	2 to 1/2 inches. Oak leaves, twige.
02	1/2 to 0 inch. Very dark gray (5YR 3/1) humus and silty material; angular chert 1/2" to 4" common, few that are 4" to 16".
A1	0 to 7 inches. Dark grayish brown (10YR 4/2) cherty silt loam; weak fine granular structure; friable; many roots all sizes; 40% chert fragments 1/4" to 3" size; pH 6.0; gradual smooth boundary.
A2	7 to 17 inches. Pale brown (10YR 6/3) cherty silt loam; weak fine granular structure; friable; many medium roots; 30% chert fragments; pH 5.5; gradual smooth boundary.
B1	17 to 24 inches. Yellowish red (5YR 4/8) cherty silty clay loam; weak medium subangular blocky structure; friable; slightly sticky; few roots; no clay films; pH 5.0; 20% chert fragments 1/4" to 3" size; gradual smooth boundary.
B21t	24 to 30 inches. Yellowish red (5YR 4/8) cherty heavy silty clay loam; moderate medium subangular blocky structure; firm; slightly sticky; common medium distinct red and pale brown mottles; clay films on peds; 30% chert fragments 1/4" to 3"; few roots; pH 5.0; clear wavy boundary.
B22t	30 to 33 inches. Dark red (2.5YR 3/6) yellowish red (5YR 4/8) and strong brown (7.5YR 5/6) cherty silty clay; moderate medium subangular blocky structure; firm, slightly sticky; clay films on ped surfaces; 25% chert fragments 1/4" to 3" size; pH 4.5; abrupt wavy boundary.
RB	33 to 41 inches. Hard flinty angular chert with red silty clay, similar to that in above horizon, in cracks, voids, and interstices.

BAXTER STONY SILT LOAM (33,02,P,a and b)

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        WEIGHT  PERCENT  AND  VOLUME  PERCENT  OF  WATER  RETAINED

IDENTIFICATION          T E N S I O N S  (BARS)
                                                                 BD       TP
33    2    1    1       .1        .3        .6        3.        15.      G/CC      PCT

    DEPTH                                                                   3
     0               38.57     28.57     20.27     19.31      7.96     1.21      54.34
                     46.66     34.56     24.52     23.36      9.63
                     FRAGMENT                        SIEVED 12.35ROCK PERCENT 53.27
                                                                            3
     5               25.30     21.94     19.38     16.29      7.51     1.32      50.19
                     33.39     28.96     25.58     21.50      9.91
                     FRAGMENT                        SIEVED  6.17ROCK PERCENT 65.90
                                                                            3
    12               21.50     19.69     17.12     13.69      6.32     1.34      49.43
                     28.81     26.38     22.94     18.34      8.46
                     FRAGMENT                        SIEVED  6.37ROCK PERCENT 91.17
                                                                            3
    21               23.17     20.90     20.47     16.18     10.07*    1.36      48.68
                     31.51     28.42     27.83     22.00     13.69
                     FRAGMENT                        SIEVED  7.01ROCK PERCENT 91.92
                                                                            3
    29               26.00     25.53     23.73     22.04     15.72**   1.18      55.47
                     30.68     30.12     28.00     26.00     18.54
                     FRAGMENT                        SIEVED 17.97ROCK PERCENT 71.36
                                                           *RERUN AS 14.72
                                                          **RERUN AS 16.40


IDENTIFICATION          T E N S I O N S  (BARS)
                                                                 BD       TP
33    2    1    2       .1        .3        .6        3.        15.      G/CC      PCT

    DEPTH                                                                   3
     0               24.14     23.24     18.33     17.33      4.49     1.27      52.08
                     30.65     29.51     23.27     22.00      5.70
                     FRAGMENT                        SIEVED 11.82ROCK PERCENT 66.66
                                                                            3
     7               24.80     21.87     19.31     16.45      6.19     1.39      47.55
                     34.47     30.39     26.84     22.86      8.60
                     FRAGMENT                        SIEVED  5.90ROCK PERCENT 65.91
                                                                            3
    17               26.57     24.53     23.10     20.40      7.94     1.31      50.57
                     34.80     32.13     30.26     26.72     10.40
                     FRAGMENT                        SIEVED 11.59ROCK PERCENT 33.44
                                                                            1
    24               34.97     30.52     27.11     25.36     13.90     1.25      52.83
                     43.71     38.15     33.88     31.70     17.37     1.45      45.28
                     FRAGMENT 30.23                  SIEVED 19.79ROCK PERCENT 40.95
                                                                            3
    30               39.24     38.46     34.74     33.68     19.57     1.04      60.75
                     40.80     39.99     36.12     35.02     20.35
                     FRAGMENT                        SIEVED 26.90ROCK PERCENT 20.58


         1=FIST
         2=CORE
         3=LOOSE
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DICKSON SILT LOAM (33,03,P,a and b)

Location: Watershed W-3 (C. M. Henderson) SW¼ SW¼ Sec. 20, T19N R31W, 100' N of pasture corner; Pit b, Watershed W-V (C. E. Mayfield) SW¼ NE¼ Sec. 26, T19N R31W.
Vegetation and land use: pit a, broom sedge; pit b, fescue pasture.
Topography: Pit a, gently sloping; pit b, nearly level.
Drainage: Moderately well drained
Parent Material: Loess over cherty limestone
Described and sampled by: O. R. Carter and G. A. Schumaker

Horizon	Description
Pit a	
Ap	0 to 5 inches. Brown (10YR 4/3) silt loam; weak fine granular structure; friable; many fine roots; pH 6.0; abrupt smooth boundary.
B2t	5 to 15 inches. Strong brown (7.5YR 5/6) heavy silt loam; weak fine subangular blocky structure; discontinuous clay films mainly in pores and root channels; friable; slightly sticky; few roots; pH 6.0; gradual smooth boundary.
BA'2	15 to 20 inches. Strong brown (7.5YR 5/6) with common medium distinct red (2.5YR 4/6) and grayish brown (10YR 5/2) mottles; silt loam; weak medium subangular blocky structure; patchy clay films on peds; friable; slightly sticky; few fine pores; no roots; pH 6.0: clear irregular boundary.
B'21tx	20 to 29 inches. Red (2.5YR 4/6) and grayish brown (10YR 5/2) red silty clay loam; firm, brittle; gray is friable silt loam in pockets and vertical streaks; coarse polygonal breaks into coarse subangular blocky structure; thick clay films; pH 5.5; arbitrary boundary.
B'22tx	29 to 47 inches. Red (2.5YR 4/6) grayish brown (10YR 5/2) and strong brown (7.5YR 5/6); gray part is silt loam; friable; remainder is silty clay loam; firm, brittle; coarse polygonal structure breaks into moderate medium subangular blocky structure; no roots; peds, pores and voids coated with thick clay films.
B'23tx	47 to 60 inches plus. Red (2.5YR 4/6), gray (10YR 6/1), and strong brown (7.5YR 5/6) silty clay loam; polygonal structure finer than above breaks to moderate medium subangular blocky; firm; brittle; interior of peds red; surrounded by strong brown polygonal cracks; gray, thick clay films on peds, in pores and voids.
Pit b	
Ap	0 to 10 inches. Brown (10YR 4/3) silt loam; weak fine granular structure; friable; many fine roots; pH 6.5; clear smooth boundary.
B1	10 to 18 inches. Yellowish brown (10YR 5/6) light silty clay loam; weak medium subangular blocky structure; friable; few fine roots; no clay films; many fine pores; pH 5.5; clear smooth boundary.
B21t	18 to 24 inches. Yellowish brown (10YR 5/6) silty clay loam; weak medium subangular blocky structure; friable; slightly sticky; clay films in pores and root channels; patchy films on peds; common fine roots; pH 5.0; clear smooth boundary.
B22t	24 to 30 inches. Strong brown (7.5YR 5/6) with many fine distinct red and pale brown mottles, heavy silty clay loam; moderate medium subangular blocky structure; firm; sticky; common fine roots; clay films common in pores and on peds; pH 5.0; clear smooth boundary.
B23tx	30 to 37 inches. Strong brown (7.5YR 5/6) and grayish brown (10YR 5/2) silty clay loam; with common medium distinct red (2.5YR 4/6) mottles and some dark coatings; strong medium subangular blocky structure; firm; brittle; clay films on peds and in pores; fine pores common; few fine roots; common fine concretions; pH 4.5; abrupt smooth boundary.
R	37 inches plus. Dense chert pan; unable to dig with backhoe.

DICKSON SILT LOAM (33,03,P,a and b)

```
     WEIGHT  PERCENT  AND  VOLUME  PERCENT  OF  WATER  RETAINED

IDENTIFICATION         T E N S I O N S  (BARS)
                                                              BD        TP       K
33   3   1   1     .1        .3        .6        3.        15.       G/CC      PCT    IN/HR

     DEPTH                                                              2
      0            25.97     24.74     21.48     18.06     5.08      1.42      46.42
                   36.87     35.13     30.50     25.64     7.21
                   FRAGMENT                         SIEVED  5.77ROCK  PERCENT   2.37
                                                                        2
      5            24.71     24.06     21.23     19.64     8.97      1.40      47.17
                   34.59     33.68     29.72     27.49     12.55
                   FRAGMENT                         SIEVED 11.41ROCK  PERCENT   1.02
                                                                        1
     15            30.97     28.19     24.70     22.06     13.07     1.27      52.08     .90
                   39.33     35.80     31.36     28.01     16.59     1.44      45.66    5.95
                   FRAGMENT  28.47                  SIEVED 15.56ROCK  PERCENT   4.70
                                                                        1
     20            24.35     22.56     20.75     17.43     10.33     1.41      46.79    2.17
                   34.33     31.80     29.25     24.57     14.56     1.53      42.26   10.67
                   FRAGMENT  21.95                  SIEVED 12.66ROCK  PERCENT   3.11
                                                                        1
     29            21.51     19.92     16.28     14.22      9.61     1.55      41.51     .59
                   33.34     30.87     25.23     22.04     14.89     1.63      38.49    6.55
                   FRAGMENT  20.32                  SIEVED 10.88ROCK  PERCENT  18.70
                                                                        1
     47            21.93     20.68     18.93     15.86     11.80     1.53      42.26     .65
                   33.55     31.64     28.96     24.26     18.05     1.62      38.87     .30
                   FRAGMENT  20.17                  SIEVED 12.49ROCK  PERCENT   4.43


IDENTIFICATION         T E N S I O N S  (BARS)
                                                              BD        TP       K
33   3   1   2     .1        .3        .6        3.        15.       G/CC      PCT    IN/HR

     DEPTH                                                              1
      0            24.90     24.17     15.25      8.84     4.67      1.54      41.89     .21
                   38.34     37.22     23.48     13.61     7.19      1.61      39.25     .61
                   FRAGMENT  22.41                  SIEVED  4.62ROCK  PERCENT   4.88
                                                                        1
     10            22.85     20.47     18.77     16.46     9.32      1.40      47.17     .39
                   31.99     28.65     26.27     23.04     13.04     1.54      41.89     .20
                   FRAGMENT  21.73                  SIEVED  7.02ROCK  PERCENT   9.04
                                                                        1
     18            23.71     21.98     20.52     19.89     14.82     1.43      46.04     .71
                   33.90     31.43     29.34     28.44     21.19     1.60      39.62     .30
                   FRAGMENT  21.95                  SIEVED 12.09ROCK  PERCENT   5.52
                                                                        1
     24            24.15     23.20     22.97     21.70     17.44     1.57      40.75     .37
                   37.91     36.42     36.06     34.06     27.38     1.73      34.72    3.37
                   FRAGMENT  23.62                  SIEVED 15.44ROCK  PERCENT  11.56
                                                                        1
     30            23.44     21.87     19.56     18.96     14.98     1.50      43.40     .57
                   35.16     32.80     29.34     28.44     22.47     1.67      36.98     .42
                   FRAGMENT  21.00                  SIEVED 12.02ROCK  PERCENT   6.67


        1=FIST
        2=CORE
        3=LOOSE
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DICKSON SILT LOAM (33,03,C,a and b)

Location: Pit a, Watershed W-1 (Oscar Sears), NE¼ NW¼ Sec. 26, T19N R31W, N end of watershed;
pit b, Watershed W-6 (Rife), SE¼ NE¼ Sec. 2, T19N R31W, N central part of watershed.
Vegetation and land use: Pit a, oat crop; pit b, cultivated.
Topography: Nearly level
Drainage: Moderately well drained.
Parent Material: Loess over cherty limestone.
Described and sampled by: O. R. Carter and G. A. Schumaker

Horizon	Description
Pit a	
A1p	0 to 6 inches. Brown (10YR 4/3) silt loam; weak fine granular structure; friable; few fine roots; some partly rotted plant stems; pH 6.0; clear smooth boundary.
A12	6 to 8 inches. Brown (10YR 4/3) silt loam; weak platy and fine subangular blocky structure; friable; slightly brittle; few fine roots; common fine pores; pH 6.0: clear smooth boundary (plow pan).
B1	8 to 13 inches. Yellowish brown (10YR 5/6) heavy silt loam, common pockets of brown silt loam; weak medium subangular blocky structure; friable; very few fine roots; no clay film; many pores; clear smooth boundary.
B21t	13 to 21 inches. Yellowish brown (10YR 5/4) silty clay loam; weak medium subangular blocky structure; friable; patchy clay films, mainly in pores; many pores; very few roots; clear smooth boundary.
B22tx	21 inches plus. Profile similar to that of pit 33,03,P,b, depths from 24 inches.
Pit b	
Ap	0 to 5 inches. Brown (10YR 4/3) silt loam; weak fine granular structure; friable; few fine roots; non-sticky; common fine pores; pH 7.0; clear wavy boundary.
A12	Brown (10YR 4/3) silt loam; weak fine subangular structure, some platy; friable; slightly brittle; common fine pores; few fine roots; pH 6.5; clear smooth boundary (plow pan).
B1	7 to 10 inches. Yellowish brown (10YR 5/6) silt loam; weak medium subangular blocky structure; friable; slightly sticky; common pockets of brown; common fine pores; pH 6.5; few fine roots; clear smooth boundary.
B21t	10 to 15 inches. Yellowish brown (10YR 5/6) silty clay loam; moderate medium subangular blocky structure; friable; sticky; common fine faint strong brown and pale brown mottles; few fine roots; clay films on peds; common fine pores; pH 6.0; gradual smooth boundary.
B22t	15 inches plus. Profile similar to that of pit 33,03,P,b, B22t and B23tx horizons.

DICKSON SILT LOAM (33,03,C,a and b)

```
     WEIGHT  PERCENT  AND  VOLUME  PERCENT  OF  WATER  RETAINED

IDENTIFICATION        T E N S I O N S  (BARS)
                                                                 BD       TP
33   3   2   1     .1       .3       .6       3.       15.      G/CC     PCT

     DEPTH                                                         2
      0            24.65    20.63    16.44    11.11    4.91     1.42     46.42
                   35.00    29.29    23.34    15.77    6.97
                   FRAGMENT                     SIEVED  3.74ROCK PERCENT  1.66
                                                                   2
      6            22.37    20.55    18.14    13.19    5.44     1.50     43.40
                   33.55    30.82    27.21    19.78    8.16
                   FRAGMENT                     SIEVED  6.27ROCK PERCENT  3.79
                                                                   2
      8            21.69    19.57    16.30    15.91    7.03     1.51     43.02
                   32.75    29.55    24.61    24.02   10.61
                   FRAGMENT                     SIEVED  5.55ROCK PERCENT  1.07
                                                                   2
     13            21.90    20.52    18.82    17.76   11.45     1.46     44.91
                   31.97    29.95    27.47    25.92   16.71
                   FRAGMENT                     SIEVED  8.72ROCK PERCENT


IDENTIFICATION        T E N S I O N S  (BARS)
                                                                 BD       TP
33   3   2   2     .1       .3       .6       3.       15.      G/CC     PCT

     DEPTH                                                         2
      0            20.96    19.17    15.95    12.98    6.35     1.46     44.91
                   30.60    27.98    23.28    18.95    9.27
                   FRAGMENT                     SIEVED  7.38ROCK PERCENT  5.04
                                                                   2
      5            22.12    19.80    15.98    12.82    6.17     1.44     45.66
                   31.85    28.51    23.01    18.46    8.88
                   FRAGMENT                     SIEVED  4.42ROCK PERCENT  6.73
                                                                   2
      7            22.43    21.31    20.12    18.84    7.20     1.49     43.77
                   33.42    31.75    29.97    28.07   10.72
                   FRAGMENT                     SIEVED  7.00ROCK PERCENT  4.73
                                                                   2
     10            24.00    23.03    21.13    20.36    7.70     1.55     41.51
                   37.20    35.69    32.75    31.55   11.93
                   FRAGMENT                     SIEVED  8.43ROCK PERCENT  9.51

     1=FIST
     2=CORE
     3=LOOSE
```

NEWTONIA SILT LOAM (33,05,P,a)

Location: Watershed W-1 (Oscar Sears) NE¼ NW¼ Sec. 26, T19N R31W, south of pasture fence.
Vegetation and land use: Grass pasture
Topography: Gently sloping
Drainage: Well drained
Parent Material: Loess over cherty limestone
Described and sampled by: O. R. Carter and G. A. Schumaker

Horizon	Description
Ap	0 to 8 inches. Brown (7.5YR 4/4) silt loam; weak fine granular structure; friable; common fine roots; pH 6.0; clear smooth boundary.
B1	8 to 14 inches. Yellowish red (5YR 4/6) light silty clay loam; weak medium subangular blocky structure; friable; common fine pores; common fine roots; no clay films; pH 6.0: clear smooth boundary.
B21t	14 to 22 inches. Red (2.5YR 4/6) silty clay loam; moderate medium subangular blocky structure; friable; slightly sticky; clay films on peds and in pores; common fine pores; common fine roots; few small subrounded pebbles; pH 5.5; clear smooth boundary.
B22t	22 to 27 inches. Red (2.5YR 4/6) and brown (7.5YR 5/4) silty clay loam; few medium distinct grayish brown mottles; moderate medium subangular blocky structure; friable; slightly sticky; continuous clay films; few fine pores; few small subrounded pebbles; few fine roots; pH 5.5; clear wavy boundary.
B23t	27 to 32 inches. Pale brown (10YR 6/3) silty clay loam with many medium distinct red (2.5YR 4/6), dark red (2.5YR 3/6), and yellowish red (5YR 4/6) mottles; light; strong medium angular blocky structure; firm; nonsticky; common fine pores; peds and pores coated with clay films; few chert fragments 1/4" to 1" size; few fine roots; pH 5.0; clear wavy boundary.
B24t	32 to 39 inches. Same as horizon above except with 30% chert fragments 1/4" to 4" size; pH 5.0; clear wavy boundary.
B25t	39 to 60 inches. Red (10R 4/6) and pinkish gray (7.5YR 6/2) silty clay; strong medium angular blocky structure; firm; slightly sticky; clay films on peds; no roots; few chert fragments 1/4" to 4" size; few pores; few strong brown splotches; pH 5.0.

BENTONVILLE, ARKANSAS

NEWTONIA SILT LOAM (33,05,P,a)

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     WEIGHT  PERCENT  AND  VOLUME  PERCENT  OF  WATER  RETAINED

IDENTIFICATION        T E N S I O N S  (BARS)
                                                                   BD       TP        K
33   5   1   1     .1        .3        .6        3.       15.     G/CC      PCT     IN/HR

     DEPTH                                                          2
      0            24.09     21.21     14.22     12.90     5.37     1.50     43.40
                   36.13     31.81     21.33     19.35     8.05
                   FRAGMENT                        SIEVED  4.08ROCK PERCENT  4.59
                                                                    1
      8            23.33     20.15     18.33     16.98    11.25     1.52     42.64     2.66
                   35.46     30.62     27.86     25.80    17.10     1.64     38.11      .30
                   FRAGMENT 20.66                  SIEVED  9.42ROCK PERCENT  2.38
                                                                    1
     14            24.15     22.59     21.66     19.73     9.03     1.44     45.66      .89
                   34.77     32.52     31.19     28.41    13.00     1.69     36.23     3.12
                   FRAGMENT 23.13                  SIEVED 13.53ROCK PERCENT 10.28
                                                         (13.68)    1
     22            25.00     23.59     21.55     21.18    12.95     1.39     47.55     1.58
                   34.75     32.79     29.95     29.44    18.00     1.70     35.85      .74
                   FRAGMENT 23.98                  SIEVED 13.76ROCK PERCENT 26.98
                                                                    1
     27            23.14     22.75     18.63     18.42    12.38     1.40     47.17      .48
                   32.39     31.85     26.08     25.78    17.33     1.66     37.36      .66
                   FRAGMENT 21.21                  SIEVED 11.06ROCK PERCENT 31.55
                                                                    3
     32            24.47     24.17     23.65     23.49    17.26     1.25     52.83
                   30.58     30.21     29.56     29.36    21.57
                   FRAGMENT                        SIEVED 18.62ROCK PERCENT  7.59
                                                                    3
     39            22.98     21.64     20.43     18.03    13.65     1.22     53.96
                   28.03     26.40     24.92     21.99    16.65
                   FRAGMENT                        SIEVED 16.12ROCK PERCENT 33.11

      1=FIST
      2=CORE
      3=LOOSE
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NEWTONIA SILT LOAM (33,05,P,b)

Location: Larry Bolte farm, SW¼ NE¼ Sec. 23, T19N R31W, NE of crossroads
Vegetation and land use: Fescue pasture
Topography: Nearly level
Drainage: Well drained
Parent Material: Loess over limestone
Described and sampled by: O. R. Carter and G. A. Schumaker

Horizon	Description
Ap	0 to 9 inches. Brown (7.5YR 4/4) silt loam; weak fine granular structure; many fine roots; pH 6.5; clear smooth boundary.
B1	9 to 16 inches. Yellowish red (5YR 4/6) light silty clay loam; weak medium subangular blocky structure; friable; root channels filled with brown silt loam; some clay films in root channels; many fine roots; pH 6.5; clear smooth boundary.
B21t	16 to 25 inches. Red (2.5YR 4/6) heavy silty clay loam; moderate medium subangular blocky structure; firm; slightly sticky; thick clay films on peds; few fine pores; common fine roots; few dark, small, subrounded pebbles; pH 6.0; gradual smooth boundary.
B22t	25 to 35 inches. Red (10R 4/6) silty clay loam; strong medium subangular blocky structure; firm; slightly sticky; many medium prominent strong brown (7.5YR 5/6) mottles; thick coatings on peds; common fine and medium pores; few fine roots; pH 5.5; gradual smooth boundary.
B23t	35 to 47 inches. Red (10R 4/6) silty clay loam with many medium brown (7.5YR 5/4) and yellowish red (5YR 5/6) mottles; strong medium subangular blocky structure; firm; slightly sticky; thick clay films; common fine pores; few small dark subrounded pebbles; few fine roots; pH 5.0; clear smooth boundary.
B24t	47 to 60 inches. Red (2.5YR 4/6), pinkish gray (7.5YR 6/2) and strong brown (7.5YR 5/6) marble patterned silty clay loam; strong medium angular blocky structure; firm, slightly sticky; many small subrounded dark pebbles; common fine pores; clay films on peds and in pores; no roots observed; pH 5.0.

BENTONVILLE, ARKANSAS

NEWTONIA SILT LOAM (33,05,P,b)

```
      WEIGHT  PERCENT  AND  VOLUME  PERCENT  OF  WATER  RETAINED

IDENTIFICATION        T E N S I O N S  (BARS)
                                                                   BD       TP       K
33    5    1    2     .1        .3        .6        3.        15.       G/CC     PCT      IN/HR

      DEPTH                                                                2
       0              21.84     21.56     14.58      8.56      4.22     1.47     44.53
                      32.10     31.69     21.43     12.58      6.20
                      FRAGMENT                        SIEVED   3.70ROCK PERCENT  2.34
                                                                           2
       9              22.68     20.25     19.49     16.04      9.25     1.47     44.53
                      33.33     29.76     28.65     23.57     13.59
                      FRAGMENT                        SIEVED   7.01ROCK PERCENT  9.84
                                                                           1
      16              24.66     22.05     21.85     19.17     15.63     1.45     45.28     4.41
                      35.75     31.97     31.68     27.79     22.66     1.70     35.85      .47
                      FRAGMENT 22.01                  SIEVED  18.82ROCK PERCENT  7.59
                                                                           1
      25              25.57     23.10     20.18     19.20     15.40     1.46     44.91      .71
                      37.33     33.72     29.46     28.03     22.48     1.60     39.62      .31
                      FRAGMENT 23.73                  SIEVED  18.67ROCK PERCENT 11.52
                                                                           1
      35              25.35     22.82     21.56     18.22     15.97     1.53     42.26      .95
                      38.78     34.91     32.98     27.87     24.43     1.68     36.60     1.85
                      FRAGMENT 21.52                  SIEVED  13.15ROCK PERCENT 40.20
                                                                           1
      47              23.37     22.86     17.08     16.38     14.32     1.65     37.74     1.99
                      38.56     37.71     28.18     27.02     23.62     1.77     33.21      .04
                      FRAGMENT 20.99                  SIEVED  13.96ROCK PERCENT 36.91

      1=FIST
      2=CORE
      3=LOOSE
```

NEWTONIA SILT LOAM (33,05,C,a and b)

Location: Watershed W-1 (Oscar Sears), NE¼ NW¼ Sec. 26, T19N R31W, north of pasture fence;
pit b, Watershed W-6 (Rife), SE¼ NE¼ Sec. 2, T19N, R31W, S central part of watershed.
Vegetation and land use: Pit a, oat crop; pit b, cultivated.
Topography: Gently sloping
Drainage: Well drained
Parent Material: Loess over limestone
Described and sampled by: O. R. Carter and G. A. Schumaker

Horizon	Description
Pit a	
A1p	0 to 6 inches. Brown (7.5YR 4/4) silt loam; weak fine granular structure; friable; few fine roots; pH 6.5; clear smooth boundary.
A12	6 to 11 inches. Brown (7.5YR 4/4) silt loam; weak fine subangular blocky structure; friable; slightly brittle; (plow pan); few fine roots; pH 6.0; clear smooth boundary.
B1	11 to 14 inches. Yellowish red (5YR 5/6) light silty clay loam; weak medium subangular blocky structure; friable; few fine roots; no clay films; few fine pores; pH 5.5; clear smooth boundary.
B21t	14 to 22 inches. Yellowish red (5YR 4/8) silty clay loam; moderate medium subangular blocky structure; friable; slightly sticky; few fine roots; clay films on peds; pH 5.5.
B22t	22 inches plus. Profile similar to pit 33,05,P,a for this horizon and horizons below.
Pit b	
Ap	0 to 5 inches. Brown (10YR 4/3) silt loam; weak fine granular structure; friable; common fine roots; clear smooth boundary.
A12	5 to 9 inches. Brown (10YR 4/3) silt loam; weak medium subangular blocky structure; thin platy in lower part; friable; slightly brittle; common charcoal fragments; common fine roots; pH 7.0; clear smooth boundary (plow pan).
B1	9 to 13 inches. Yellowish brown (10YR 5/4) light silty clay loam; weak medium subangular blocky structure; friable; common pockets of brown silt loam and yellowish red silty clay loam; common fine pores; few fine roots; pH 6.5; gradual smooth boundary.
B21t	13 to 25 inches. Yellowish red (5YR 5/6) silty clay loam; moderate medium subangular blocky structure; firm; slightly sticky; clay films on peds; common fine pores; common medium faint red and strong brown mottles; few fine roots; pH 5.5; clear smooth boundary.
B22t	25 inches plus. Profile similar to pit 33,05,P,a, B22t horizon.

NEWTONIA SILT LOAM (33,05,C,a and b)

```
      WEIGHT  PERCENT  AND  VOLUME  PERCENT  OF  WATER  RETAINED

IDENTIFICATION          T E N S I O N S  (BARS)
                                                                  BD        TP
33    5    2    1      .1        .3        .6        3.       15.        G/CC      PCT

     DEPTH                                                               2
       0               22.25     21.68     16.33     12.21     5.12      1.36      48.68
                       30.26     29.48     22.20     16.60     6.96
                       FRAGMENT                        SIEVED  4.19ROCK PERCENT   5.28
                                                                         2
       6               23.04     22.66     15.12     10.42     4.67      1.42      46.42
                       32.71     32.17     21.47     14.79     6.63
                       FRAGMENT                        SIEVED  3.93ROCK PERCENT  12.00
                                                                         2
      11               25.56     24.82     17.56     13.95     8.69      1.53      42.26
                       39.10     37.97     26.86     21.34    13.29
                       FRAGMENT                        SIEVED 11.12ROCK PERCENT   3.57
                                                                         2
      14               22.70     21.48     20.81     18.74    13.04      1.51      43.02
                       34.27     32.43     31.42     28.29    19.69
                       FRAGMENT                        SIEVED 13.30ROCK PERCENT  34.47


IDENTIFICATION          T E N S I O N S  (BARS)
                                                                  BD        TP
33    5    2    2      .1        .3        .6        3.       15.        G/CC      PCT

     DEPTH                                                               2
       0               26.08     20.31     18.78     13.31     5.09      1.46      44.91
                       38.07     29.65     27.41     19.43     7.43
                       FRAGMENT                        SIEVED  4.72ROCK PERCENT  17.09
                                                                         2
       5               25.16     24.45     17.50     12.37     5.14      1.46      44.91
                       36.73     35.69     25.55     18.06     7.50
                       FRAGMENT                        SIEVED  4.58ROCK PERCENT   3.97
                                                                         2
       9               28.61     27.13     18.91     17.89     8.19      1.51      43.02
                       43.20     40.96     28.55     27.01    12.36
                       FRAGMENT                        SIEVED  8.29ROCK PERCENT   3.92
                                                                         2
      13               25.31     23.32     22.12     21.34    14.87      1.53      42.26
                       38.72     35.67     33.84     32.65    22.75
                       FRAGMENT                        SIEVED 12.65ROCK PERCENT   6.95


          1=FIST
          2=CORE
          3=LOOSE
```

TALIHINA CLAY LOAM (36,01,P,a and b)

Location: Watershed 36 (NWNW Section 10-14N-17E)
Vegetation and land use: Pasture
Topography: 16 percent slopes
Drainage: Somewhat excessively drained
Parent Material: Shale
Described and sampled by: R. M. Long and G. A. Schumaker

Horizon	Description
Pit a	
A1	0 to 6 inches. Very dark grayish brown (2.5Y 3/2) when moist; clay loam; moderate fine granular structure; firm when moist; common siltstone and sandstone fragments; gradual boundary.
C	6 to 16 inches. Grayish brown (2.5Y 5/2) when moist; clay; massive structure; a few distinct yellowish brown mottles; a few siltstone and sandstone fragments less than 1/2" in diameter; very firm when moist; gradual boundary.
R	16 inches plus. Shale.
Pit b	
A1	0 to 9 inches. Very dark brown (10YR 2/2) when moist; heavy silt loam; weak fine granular structure; firm when moist; a few sandstone fragments less than 1/2" in diameter; gradual boundary.
C	9 inches plus. Dark grayish brown (2.5Y 4/2) when moist; clay; massive structure; mottled with brownish yellow; a few siltstone and sandstone fragments.

Remarks: Stones ranging from 4 inches to 3 feet in diameter cover about 10 percent of the surface.

MUSKOGEE, OKLAHOMA

TALIHINA CLAY LOAM (36,01,P,a and b)

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      WEIGHT  PERCENT  AND  VOLUME  PERCENT  OF  WATER  RETAINED

IDENTIFICATION         T E N S I O N S  (BARS)
                                                                 BD       TP      K
36    1    1    1     .1        .3        .6        3.       15.       G/CC     PCT    IN/HR

    DEPTH                                                          1
     0               28.82     28.24     23.68     20.78     14.80     1.32    50.19    1.93
                     38.04     37.27     31.25     27.42     19.53     1.47    44.53    1.35
                     FRAGMENT  26.98                  SIEVED 14.72ROCK PERCENT 48.65
                                                                       1
     6               30.04     27.58     27.01     21.42     17.12     1.48    44.15    1.44
                     44.45     40.81     39.97     31.70     25.33     1.72    35.09    1.50
                     FRAGMENT  26.28                  SIEVED 17.03ROCK PERCENT 32.75
                                                                       1
    16               15.32     14.09     13.84     12.12     11.24     1.54    41.89     .17
                     23.59     21.69     21.31     18.66     17.30     1.62    38.87     .16
                     FRAGMENT  13.34                  SIEVED 10.66ROCK PERCENT  2.07


IDENTIFICATION         T E N S I O N S  (BARS)
                                                                 BD       TP      K
36    1    1    2     .1        .3        .6        3.       15.       G/CC     PCT    IN/HR

    DEPTH                                                          1
     0               24.83     23.26     22.34     21.51     15.10     1.36    48.68    2.42
                     33.76     31.63     30.38     29.25     20.53     1.47    44.53    2.54
                     FRAGMENT  22.51                  SIEVED 15.93ROCK PERCENT 46.11
                                                                       1
     9               26.73     24.20     19.62     16.80     14.48     1.42    46.42     .09
                     37.95     34.36     27.86     23.85     20.56     1.58    40.38     .08
                     FRAGMENT  23.65                  SIEVED 10.70ROCK PERCENT 17.78

      1=FIST
      2=CORE
      3=LOOSE
```

COLLINSVILLE LOAM (36,02,P,a and b)

Location: Watershed 36 (NWNW Section 10-14N-17E)
Vegetation and land use: Pasture
Topography: 5 percent slopes
Drainage: Somewhat excessively drained
Parent Material: Sandstone
Described and sampled by: R. M. Long and G. A. Schumaker

Horizon	Description
Pit a	
A1	0 to 9 inches. Very dark grayish brown (10YR 3/2) when moist; loam; weak fine granular structure; very friable when moist; a few fragments of sandstone less than 1/2" in diameter; wavy boundary.
R	9 inches plus. Acid sandstone.
Pit b	
A1	0 to 7 inches. Dark brown (10YR 3/3) when moist; weak fine granular structure; very friable when moist; a few sandstone fragments less than 1/2" in diameter; wavy boundary.
R	7 inches plus. Acid sandstone.

COLLINSVILLE LOAM (36,02,P,a and b)

```
     WEIGHT  PERCENT  AND  VOLUME  PERCENT  OF  WATER  RETAINED

IDENTIFICATION        T E N S I O N S  (BARS)
                                                                BD        TP       K
36   2   1   1     .1        .3        .6        3.        15.       G/CC      PCT     IN/HR

    DEPTH                                                             1
     0            26.35     21.39     18.75     16.04     10.35     1.37     48.30     1.54
                  36.09     29.30     25.68     21.97     14.17     1.43     46.04     2.24
                  FRAGMENT  20.19                 SIEVED    9.90ROCK  PERCENT  15.67


IDENTIFICATION        T E N S I O N S  (BARS)
                                                                BD        TP       K
36   2   1   2     .1        .3        .6        3.        15.       G/CC      PCT     IN/HR

    DEPTH                                                             1
     0            26.62     25.19     21.11     14.18      9.90     1.51     43.02     1.77
                  40.19     38.03     31.87     21.41     14.94     1.58     40.38     1.49
                  FRAGMENT  24.84                 SIEVED    9.17ROCK  PERCENT  17.66

     1=FIST
     2=CORE
     3=LOOSE
```

DENNIS SILT LOAM (36,03,C,a and b)

Location: Watershed 36 (NWSW Section 4-14N-17E)
Vegetation and land use: Cultivated
Topography: 1 to 3 percent slopes
Drainage: Moderately well drained
Parent Material: Shale
Described and sampled by: R. M. Long and G. A. Schumaker

Horizon	Description
Pit a	
A1	0 to 11 inches. Very dark grayish brown (10YR 3/2) when moist; silt loam; weak fine granular structure; very friable when moist; gradual boundary.
B1	11 to 26 inches. Yellowish brown (10YR 5/4) when moist; mottled with red (10R 4/8); clay loam; weak, fine and medium granular structure; few iron concretions; firm when moist; gradual boundary.
B2t	26 to 44 inches. Yellowish brown (10YR 5/4) when moist; clay; moderate coarse and medium subangular blocky structure; few iron concretions; very firm when moist; gradual boundary.
C	44 inches plus. Grayish brown (10YR 5/2) yellowish brown (10YR 5/6) when moist; light clay; massive structure; many fine and medium iron concretions; hard when moist.
Pit b	
A1	0 to 8 inches. Very dark grayish brown (10YR 3/2) when moist; silt loam; weak fine granular structure; very friable when moist; gradual boundary.
B1	8 to 28 inches. Dark grayish brown (10YR 4/2) when moist; clay loam; weak coarse subangular blocky structure; firm when moist; gradual boundary.
B2t	28 to 45 inches. Pale brown (10YR 6/3) mottled with light brownish gray (10YR 6/2) when moist; clay; moderate coarse subangular blocky structure; few iron concretions; very firm when moist; gradual boundary.
C	45 inches plus. Light gray (10YR 6/1) yellowish brown (10YR 5/6) when moist; clay; massive structure; few iron concretions; very firm when moist.

DENNIS SILT LOAM (36,03,C,a and b)

WEIGHT PERCENT AND VOLUME PERCENT OF WATER RETAINED

IDENTIFICATION 36 3 2 1	TENSIONS (BARS) .1	.3	.6	3.	15.	BD G/CC	TP PCT	K IN/HR
DEPTH						1		
0	27.09	24.32	19.64	15.07	9.84	1.21	54.34	.30
	32.77	29.42	23.76	18.23	11.90	1.40	47.17	.60
	FRAGMENT	23.14		SIEVED	8.72ROCK	PERCENT	8.57	
						1		
11	27.08	24.32	23.62	20.21	9.34	1.24	53.21	.23
	33.57	30.15	29.28	25.06	11.58	1.44	45.66	3.07
	FRAGMENT	23.18		SIEVED	16.00ROCK	PERCENT	33.33	
						1		
26	26.05	25.77	25.51	24.88	17.84	1.37	48.30	.05
	35.68	35.30	34.94	34.08	24.44	1.74	34.34	.12
	FRAGMENT	24.22		SIEVED	27.60ROCK	PERCENT	29.18	
						1		
44	21.05	19.59	18.00	16.66	13.01	1.71	35.47	
	35.99	33.49	30.78	28.48	22.24	1.79	32.45	
	FRAGMENT	17.70		SIEVED	13.27ROCK	PERCENT	49.95	

IDENTIFICATION 36 3 2 2	TENSIONS (BARS) .1	.3	.6	3.	15.	BD G/CC	TP PCT	K IN/HR
DEPTH						1		
0	26.82	24.34	22.58	16.66	11.34	1.25	52.83	.39
	33.52	30.42	28.22	20.82	14.17	1.32	50.19	.67
	FRAGMENT	26.09		SIEVED	11.00ROCK	PERCENT	16.76	
						1		
8	36.76	34.02	32.01	30.17	14.51	1.21	54.34	
	44.47	41.16	38.73	36.50	17.55	1.64	38.11	
	FRAGMENT	35.03		SIEVED	24.12ROCK	PERCENT	19.38	
						1		
28	33.66	33.33	31.69	28.25	24.11	1.40	47.17	.24
	47.12	46.66	44.36	39.55	33.75	1.76	33.58	.06
	FRAGMENT	31.89		SIEVED	22.34ROCK	PERCENT	1.03	
						1		
45	24.36	23.04	20.98	20.47	17.83	1.70	35.85	.22
	41.41	39.16	35.66	34.79	30.31	1.73	34.72	.03
	FRAGMENT	20.91		SIEVED	20.35ROCK	PERCENT	50.18	

1=FIST
2=CORE
3=LOOSE

TALOKA SILT LOAM (PARSONS) (36,04,C,a and b)

Location: Watershed 36 (SENE Section 21-15N-17E)
Vegetation and land use: Cultivated
Topography: 1 to 3 percent slopes
Drainage: Moderately well drained
Parent Material: Old alluvium
Described and sampled by: R. M. Long and G. A. Schumaker

Horizon	Description
Pit a	
A1	0 to 12 inches. Dark brown (10YR 3/3) when moist; silt loam; weak fine granular structure; very friable when moist; clear wavy boundary.
A2	12 to 17 inches. Brown (10YR 5/3) when moist; silt loam; weak fine granular structure; very friable when moist; clear wavy boundary.
B2t	17 to 28 inches. Yellowish brown (10YR 5/4) when moist; clay; moderate medium blocky structure; common, medium and coarse, distinct brown and yellow mottles; clay films on faces of peds; very firm when moist; gradual boundary.
B3	28 to 40 inches. Brownish yellow (10YR 6/6) when moist; yellowish brown (10YR 5/6) when moist; light clay; moderate medium blocky structure; few iron concretions; very firm when moist; gradual boundary.
C	40 inches plus. Yellowish brown (10YR 5/6) light gray (10YR 7/2) brown (10YR 4/3) when moist; light clay; massive structure; many iron concretions; very firm when moist.
Pit b	
A1	0 to 17 inches. Very dark grayish brown (10YR 3/2) when moist; silt loam; weak fine granular structure; very friable when moist; clear boundary.
A2	17 to 24 inches. Pale brown (10YR 6/3) when moist; silt loam; weak fine granular structure; very friable when moist; abrupt boundary.
B2t	24 to 36 inches. Light yellowish brown (10YR 6/4) yellowish brown (10YR 5/4) when moist; clay; moderate to medium blocky structure; very firm when moist; few iron concretions; gradual boundary.
B3	36 inches plus. Light gray (10YR 7/2) yellowish brown (10YR 5/6) dark brown (10YR 3/3) when moist; light clay; weak medium blocky structure; many iron concretions; very firm when moist.

TALOKA SILT LOAM (PARSONS) (36,04,C,a and b)

```
     WEIGHT  PERCENT  AND  VOLUME  PERCENT  OF  WATER  RETAINED

IDENTIFICATION       T E N S I O N S  (BARS)
                                                            BD        TP      K
36    4    2    1     .1        .3        .6       3.       15.       G/CC      PCT    IN/HR

     DEPTH                                                           1
      0             26.94     22.79     14.81     9.13     4.57      1.46     44.91    .94
                    39.33     33.27     21.62    13.32     6.67      1.50     43.40    .39
                    FRAGMENT  21.57               SIEVED   6.10ROCK  PERCENT   4.21
                                                                     3
      12            25.95     23.20     18.23    13.04     7.47      1.31     50.57   1.14
                    33.99     30.39     23.88    17.08     9.78                       1.98
                    FRAGMENT                      SIEVED   5.54ROCK  PERCENT  13.04
                                                                     1
      17            28.72     27.49     25.46    23.93    18.01      1.39     47.55    .12
                    39.92     38.21     35.38    33.26    25.03      1.63     38.49    .18
                    FRAGMENT  26.12               SIEVED  16.17ROCK  PERCENT  23.76
                                                                     1
      28            29.50     26.50     22.11    20.41    15.08      1.46     44.91    .13
                    43.07     38.69     32.28    29.79    22.01      1.53     42.26    .12
                    FRAGMENT  28.05               SIEVED  23.85ROCK  PERCENT  34.09
                                                                     1
      40            29.61     27.58     22.29    19.53    17.71      1.38     47.92    .12
                    40.86     38.06     30.76    26.95    24.43      1.56     41.13    .02
                    FRAGMENT  27.03               SIEVED  12.55ROCK  PERCENT  37.87
                                                         (21.85)

IDENTIFICATION       T E N S I O N S  (BARS)
                                                            BD        TP      K
36    4    2    2     .1        .3        .6       3.       15.       G/CC      PCT    IN/HR

     DEPTH                                                           1
      0             29.45     28.39     15.15    10.13     3.97      1.51     43.02   1.13
                    44.46     42.86     22.87    15.29     5.99      1.54     41.89    .90
                    FRAGMENT  26.09               SIEVED   4.72ROCK  PERCENT    .30
                                                                     3
      17            28.39     26.66     16.40     9.85     8.02      1.26     52.45   1.48
                    35.77     33.59     20.66    12.41    10.10                       1.48
                    FRAGMENT                      SIEVED   5.28ROCK  PERCENT    .99
                                                                     1
      24            31.97     30.34     27.58    25.00    17.67      1.35     49.06    .41
                    43.15     40.95     37.23    33.75    23.85      1.72     35.09    .13
                    FRAGMENT  30.61               SIEVED  19.27ROCK  PERCENT  37.03
                                                                     1
      36            30.85     23.48     22.47    22.22    20.66      1.42     46.42    .11
                    43.80     33.34     31.90    31.55    29.33      1.63     38.49    .20
                    FRAGMENT  21.45               SIEVED  21.93ROCK  PERCENT   2.05

        1=FIST
        2=CORE
        3=LOOSE
```

ALBION LOAM (37,01,P,a)

Location: About 1460' W and 820' N of SE cor. of Sec. 27, T.22N, R.2E.
Vegetation and land use: Native grass
Topography: 3.4 percent slope
Drainage: Well drained from surface
Parent Material: Unconsolidated gravelly old alluvial material
Described and sampled by: J. R. Culver and G. A. Schumaker

Horizon	Description
A1	0 to 10 inches. Dark grayish brown (10YR 4/2) sandy loam very dark grayish brown (10YR 3/2) when moist; weak, fine to medium, granular structure; very friable when moist, slightly hard when dry; few fine gravels; roots and worm casts abundant; pH 6.0; clear boundary.
B1	10 to 14 inches. Brown (7.5YR 4/2) heavy sandy loam, dark brown (7.5YR 3/2) when moist; weak, fine, granular structure; very friable when moist, slightly hard when dry; few fine gravel; roots and worm casts abundant; pH 6.0; gradual boundary.
B2t	14 to 26 inches. Reddish brown (5YR 4/3) light sandy clay loam, dark reddish brown (5YR 3/3) when moist; weak, coarse, subangular blocky and moderate, coarse, prismatic structure; friable when moist, very hard when dry; many organic stains along root channels and along faces of prisms, worm casts and roots abundant, pH 6.0; gradual boundary.
C	26 to 42 inches. Reddish brown (5YR 4/3) coarse sand and fine to medium gravel without any fines, dark reddish brown (5YR 3/3) when moist; porous massive structure, loose when moist, loose to slightly hard when dry; freely permeable; pH 6.0; abrupt boundary.
IIC	42 to 60 inches plus. Reddish brown (2.5YR 4/4) clay, dark reddish brown (2.5YR 3/4) when moist; essentially unweathered clay beds of the Permian. The gravel and sandy material of above horizons was deposited since the Permian time. The contact between these two different geological materials at 42 inches represents a zone of restriction for water percolation. Water percolation in the Permians is very slow to none.

Remarks: This mapping unit is listed as Albion loam, 2-5 percent slopes in the Noble County Soil Survey Report. The sandy loam surface texture is well within the range in characteristics of the Albion series. The Permian redbeds at 42 in. are not modal for the series; however, in this particular area it is not uncommon for Permian redbeds to be below 3 feet.

STILLWATER, OKLAHOMA

ALBION LOAM (37,01,P,a)

```
      WEIGHT  PERCENT  AND  VOLUME  PERCENT  OF  WATER  RETAINED

IDENTIFICATION        T E N S I O N S  (BARS)
                                                                 BD       TP       K
37   1   1   1     .1        .3        .6        3.        15.     G/CC     PCT    IN/HR

     DEPTH                                                           1
      0            15.51      9.76      9.27      6.81      4.81    1.57    40.75    4.99
                   24.35     15.32     14.55     10.69      7.55    1.60    39.62    2.95
                   FRAGMENT   9.12                SIEVED    4.97ROCK PERCENT  1.76
                                                                     1
     10            13.97      9.69      8.49      6.61      5.28    1.47    44.53    3.49
                   20.53     14.24     12.48      9.71      7.76    1.53    42.26    4.73
                   FRAGMENT   9.35                SIEVED    5.28ROCK PERCENT  4.66
                                                                     1
     14            15.86     11.34     10.81      8.33      6.78    1.60    39.62    2.15
                   25.37     18.14     17.29     13.32     10.84    1.65    37.74    2.19
                   FRAGMENT  11.60                SIEVED    7.72ROCK PERCENT  9.82
                                                                     1
     42            42.94     31.95     29.99     24.87     23.75    1.34    49.43     .07
                   57.53     42.81     40.18     33.32     31.82    1.40    47.17     .08
                   FRAGMENT  29.38                SIEVED   21.38ROCK PERCENT
                                                                     1
     28            11.15      8.57      8.25      6.66      4.45    1.82    31.32    1.12
                   20.29     15.59     15.01     12.12      8.09    1.88    29.06    1.24
                   FRAGMENT   8.25                SIEVED    4.44ROCK PERCENT 18.57

      1=FIST
      2=CORE
      3=LOOSE
```

ALBION LOAM (37,01,P,b)

Location: About 1760' W and 1280' N of SE corner of Sec. 27, T.22N, R.2E.
Vegetation and land use: Native grass
Topography: 3.5 percent slope
Drainage: Well drained from surface
Parent Material: Unconsolidated gravelly old alluvial material
Described and sampled by: J. R. Culver and G. A. Schumaker

Horizon	Description
A1	0 to 10 inches. Brown (10YR 4/3) sandy loam, dark brown (10YR 3/3) when moist; weak, medium, granular structure; very friable when moist, slightly hard when dry; roots and worm casts abundant; pH 6.0; clear boundary.
B1	10 to 14 inches. Brown (7.5YR 4/4) heavy sandy loam, dark brown (7.5YR 3/2) when moist; weak, medium, granular structure; very friable when moist, slightly hard when dry; small size gravel common; roots and worm casts abundant; pH 6.0; gradual boundary.
B2t	14 to 27 inches. Reddish brown (5YR 4/4) light sandy clay loam, dark reddish brown (5YR 3/4) when moist; weak, coarse, subangular blocky and moderate, coarse, prismatic structure; friable when moist, hard when dry; organic stains on faces of prisms; worm casts and roots abundant; pH 6.0; gradual boundary.
B3	27 to 35 inches. Yellowish red (5YR 5/6) sandy loam; yellowish red (5YR 4/6) when moist; massive, single grain structure; slightly loose when moist; slightly hard when dry; few roots; pH 6.0; gradual boundary.
C	35 to 60 inches. Yellowish red (5YR 5/6) coarse sand, yellowish red (5YR 4/6) when moist; porous massive structure; loose when moist, loose to slightly hard when dry; small gravel common; pH 6.0.

Remarks: This mapping unit is listed as Albion loam, 2-5 percent slopes in the Noble County Soil Survey Report. The sandy loam is well within the central concept of the allowable range in characteristics.

STILLWATER, OKLAHOMA

ALBION LOAM (37,01,P,b)

```
       WEIGHT  PERCENT  AND  VOLUME  PERCENT  OF  WATER  RETAINED

IDENTIFICATION        T E N S I O N S  (BARS)
                                                             BD        TP       K
37    1    1    2     .1        .3        .6        3.       15.     G/CC      PCT    IN/HR

     DEPTH                                                            1
      0              15.93     10.77     10.24      7.09     5.09     1.60     39.62     .98
                     25.48     17.23     16.38     11.34     8.14     1.66     37.36     .60
                     FRAGMENT  10.82                SIEVED   3.10ROCK PERCENT  8.54
                                                                      1
     10               9.94      8.38      8.29      5.32     5.22     1.71     35.47    3.61
                     16.99     14.32     14.17      9.09     8.92     1.78     32.83    4.92
                     FRAGMENT   8.76                SIEVED   9.26ROCK PERCENT 18.60
                                                                      1
     14              17.53     16.39     14.11     11.05     8.07     1.61     39.25    1.16
                     28.22     26.38     22.71     17.79    12.99     1.71     35.47    1.25
                     FRAGMENT  13.54                SIEVED   7.92ROCK PERCENT  1.00
                                                                      1
     27              13.42     10.69     10.32      7.72     5.70     1.78     32.83    1.12
                     23.88     19.02     18.36     13.74    10.14     1.84     30.57     .93
                     FRAGMENT   9.33                SIEVED 13.72ROCK PERCENT
                                                          (12.31)     1
     35               6.99      5.91      5.05      4.30     2.65     1.84     30.57     .92
                     12.86     10.87      9.29      7.91     4.87     1.91     27.92    1.96
                     FRAGMENT   6.83                SIEVED   1.15ROCK PERCENT  4.66

      1=FIST
      2=CORE
      3=LOOSE
```

PORT SILT LOAM (37,02,P,a and b)

Location: Pit a, about 300' W and 1780' N of SE cor. Sec. 27, T.22N, R.2E;
pit b, about 500' W and 1800' N of SE cor. Sec. 27, T.22N, R.2E.
Vegetation and land use: Native grass
Topography: 0-1 percent slopes
Drainage: Good from surface
Parent Material: Loamy alluvium
Described and sampled by: J. R. Culver and G. A. Schumaker

Horizon	Description
Pit a	
A1	0 to 10 inches. Brown (7.5YR 4/2) silt loam, dark brown (7.5YR 3/2) when moist; moderate, medium, granular structure; friable when moist, slightly hard when dry; roots abundant; pH 6.0; gradual boundary.
A12	10 to 19 inches. Brown (7.5YR 4/2) heavy silt loam, dark brown (7.5YR 3/2) when moist; strong, medium, granular structure; friable when moist, slightly hard when dry; worm casts, pinholes and roots abundant; pH 6.0; gradual boundary.
AC	19 to 38 inches. Reddish brown (5YR 4/3) clay loam, dark reddish brown, (5YR 3/3) when moist; strong, medium, granular structure; friable when moist, very hard when dry; permeable; fine roots and pinholes abundant; pH 6.0; gradual boundary.
C	38 to 60 inches. Reddish brown (5YR 4/3) heavy silt loam, dark reddish brown, (5YR 3/3) when moist; weak blocky structure, breaks down moderate medium granular structure; friable when moist, very hard when dry; fine roots and pinholes abundant, pinholes larger in size than above horizons; pH 6.5.
Pit b	
A1	0 to 14 inches. Brown (7.5YR 4/2) silt loam, dark brown (7.5YR 3/2) when moist; moderate, medium, granular structure; friable when moist, slightly hard when dry; roots abundant; pH 6.0; gradual boundary.
A12	14 to 24 inches. Brown (7.5YR 4/2) heavy silt loam, dark brown (7.5YR 3/2) when moist; slightly darker than above horizon; moderate, medium, granular structure; friable when moist, hard when dry; roots and worm casts abundant; pH 6.0; clear boundary.
AC	24 to 39 inches. Reddish brown (5YR 4/3) heavy silt loam, dark reddish brown (5YR 3/3) when moist; moderate medium granular structure; friable when moist; very hard when dry; worm casts, fine pinholes, and roots common; pH 6.0; clear boundary.
C	39 inches plus. Reddish brown (5YR 4/3) clay loam, dark reddish brown (5YR 3/3) when moist; massive structure; very firm when moist, extremely hard when dry; large individual quartz grains common; calcium carbonate concretions; few fine roots; pH 8.0.

Remarks: This area is shown as Gowen silty clay loam in the Noble County Soil Survey Report. The area consists of a small alluvial drain. The soils are quite variable but are mostly loamy and support excellent native grass. The samples collected, 37,02,Pa and Pb, are representative of the Port silt loam rather than Gowen silty clay loam. Small bodies of Gowen silty clay loam do occur in the mapping unit but it was found that Port silt loam was predominate, thus Port was sampled.

STILLWATER, OKLAHOMA

PORT SILT LOAM (37,02,P,a and b)

```
     WEIGHT  PERCENT  AND  VOLUME  PERCENT  OF  WATER  RETAINED

IDENTIFICATION         T E N S I O N S  (BARS)
                                                                BD         TP        K
37   2   1   1     .1        .3        .6        3.        15.       G/CC       PCT      IN/HR

    DEPTH                                                               1
     0             30.76     25.21     21.15     17.74     11.28     1.38      47.92      .31
                   42.44     34.78     29.18     24.48     15.56     1.49      43.77      .33
                   FRAGMENT  23.20               SIEVED   9.04ROCK PERCENT
                                                                        1
     10            29.16     23.85     21.35     21.14     12.37     1.41      46.79      .07
                   41.11     33.62     30.10     29.80     17.44     1.56      41.13      .13
                   FRAGMENT  23.88               SIEVED  10.10ROCK PERCENT
                                                                        1
     19            27.99     23.25     21.31     18.64     12.30     1.52      42.64      .11
                   42.54     35.34     32.39     28.33     18.69     1.66      37.36      .04
                   FRAGMENT  21.08               SIEVED  10.22ROCK PERCENT
                                                                        1
     38            24.82     19.68     18.23     13.59      9.68     1.52      42.64      .14
                   37.72     29.91     27.70     20.65     14.71     1.61      39.25      .06
                   FRAGMENT  19.57               SIEVED   9.35ROCK PERCENT   .66


IDENTIFICATION         T E N S I O N S  (BARS)
                                                                BD         TP        K
37   2   1   2     .1        .3        .6        3.        15.       G/CC       PCT      IN/HR

    DEPTH                                                               1
     0             26.19     20.45     19.35     15.49     12.32     1.48      44.15      .02
                   38.76     30.26     28.63     22.92     18.23     1.57      40.75      .12
                   FRAGMENT  19.44               SIEVED   7.54ROCK PERCENT
                                                        (13.27)         1
     12            25.96     21.62     20.68     19.78     10.56     1.49      43.77      .03
                   38.68     32.21     30.81     29.47     15.73     1.61      39.25      .08
                   FRAGMENT  19.50               SIEVED   9.71ROCK PERCENT   .14
                                                                        1
     24            24.63     17.24     16.98     15.90      9.32     1.53      42.26      .07
                   37.68     26.37     25.97     24.32     14.25     1.68      36.60      .07
                   FRAGMENT  15.95               SIEVED   8.94ROCK PERCENT  2.65
                                                                        1
     39            25.38     19.68     16.17     15.52     11.27     1.61      39.25      .14
                   40.86     31.68     26.03     24.98     18.14     1.75      33.96      .08
                   FRAGMENT  18.53               SIEVED  11.56ROCK PERCENT 37.00


          1=FIST
          2=CORE
          3=LOOSE
```

KIRKLAND SILT LOAM (37,03,P,a and b)

Location: Pit a about 1650' E and 300' S of NW cor. of SW¼ of Sec. 27, T.22N, R.2E;
Pit b about 1750' E and 600' S of NW cor. of SW¼ of Sec. 27, T.22N, R.2E.
Vegetation and land use: Native grass
Topography: Gently sloping upland, 2.5 percent slope.
Drainage: Slow from surface
Parent Material: Alkaline clays and shales of Permian system.
Described and sampled by: J. R. Culver and G. A. Schumaker

Horizon	Description
Pit a	
A1	0 to 10 inches. Brown (10YR 4/3) silt loam, dark brown (10YR 3/3) when moist; moderate, medium, granular structure; friable when moist, hard when dry; roots abundant; pH 6.0; clear boundary.
B2t	10 to 28 inches. Brown (10YR 4/3) clay, dark brown (10YR 3/3) when moist; moderate, medium to fine, blocky structure; clay skins on ped faces prominent; very firm and compact when moist, extremely hard when dry; many fine roots concentrated primarily along ped faces but are also common within peds; layer contains a few black shotlike ferruginous concentrations; pH 7.0 in upper portion, 7.5 in lower portion; gradual boundary.
B3	28 to 40 inches. Brown (10YR 5/3) clay, dark brown (10YR 4/3) when moist; moderate, coarse, blocky structure; extremely firm when moist, extremely hard when dry; fine roots along ped faces; few calcium carbonate concretions but soil mass is noncalcareous though mildly alkaline; pH 8.0; gradual boundary.
C	40 to 60 inches plus. Reddish brown (10YR 4/4) light clay, dark reddish brown (10YR 3/4) when moist; weak medium blocky to massive structure; very firm when moist, very hard when dry; numerous small ferruginous concretions; pH 8.0.
Pit b	
A1	0 to 13 inches. Dark grayish brown (10YR 4/2) silt loam, very dark brown (10YR 2/2) when moist; moderate, medium, granular structure; friable when moist, slightly hard when dry; pH 6.0; clear boundary.
B2t	13 to 27 inches. Brown (10YR 4/3) clay, dark brown (10YR 3/3) when moist; moderate, medium to fine, blocky structure; distinct clay skins; very firm when moist, extremely hard when dry; very slowly permeable; few fine roots; pH 6.5 in upper part becoming neutral in lower part; gradual boundary.
B31	27 to 36 inches. Brown (10YR 5/3) clay, dark brown (10YR 3/3) when moist; moderate, medium, blocky structure; very firm when moist, extremely hard when dry; few small black shotlike ferruginous concretions; small calcium carbonate concretions; pH 7.8; gradual boundary.
B32	36 to 42 inches. Brown (7.5YR 4/4) light clay, dark brown (7.5YR 3/2) when moist, coarse, blocky structure; very firm when moist, extremely hard when dry; small size rounded quartz present; calcium carbonate present; few small ferruginous concretions; pH 8.0; gradual boundary.
C	42 to 60 inches. Reddish brown (5YR 4/4) heavy clay loam, dark reddish brown (5YR 3/4) when moist; coarse, blocky to massive structure; firm when moist, hard when dry; ferruginous concretions, fine calcium carbonate concretions; pH 8.0.

KIRKLAND SILT LOAM (37,03,P,a and b)

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      WEIGHT  PERCENT  AND  VOLUME  PERCENT  OF  WATER  RETAINED

IDENTIFICATION         T E N S I O N S  (BARS)
                                                                 BD        TP        K
37    3    1    1     .1        .3        .6        3.        15.       G/CC      PCT      IN/HR

      DEPTH                                                          1
       0              32.52     27.17     26.82     19.45     10.99     1.39      47.55     .12
                      45.20     37.76     37.27     27.03     15.27     1.50      43.40     0
                      FRAGMENT  26.39                  SIEVED 10.52ROCK PERCENT   4.24
                                                                     1
       12             40.37     38.76     38.03     30.44     21.75     1.38      47.92     .21
                      55.71     53.48     52.48     42.00     30.01     1.73      34.72     0
                      FRAGMENT  38.22                  SIEVED 24.46ROCK PERCENT  55.28
                                                                     1
       28             35.35     30.27     28.92     24.31     18.80     1.40      47.17     .06
                      49.49     42.37     40.48     34.03     26.32     1.81      31.70     .02
                      FRAGMENT  29.47                  SIEVED 19.19ROCK PERCENT    .38
                                                                     1
       40             33.08     27.84     25.73     22.05     15.78     1.39      47.55     .20
                      45.98     38.69     35.76     30.64     21.93     1.71      35.47     .02
                      FRAGMENT  26.11                  SIEVED 16.74ROCK PERCENT  18.01


IDENTIFICATION         T E N S I O N S  (BARS)
                                                                 BD        TP        K
37    3    1    2     .1        .3        .6        3.        15.       G/CC      PCT      IN/HR

      DEPTH                                                          1
       0              32.51     28.57     24.87     20.95     11.00     1.40      47.17    1.04
                      45.51     39.99     34.81     29.33     15.40     1.50      43.40     .59
                      FRAGMENT  27.61                  SIEVED  9.39ROCK PERCENT
                                                                     1
       13             42.39     38.25     37.42     31.35     22.83     1.29      51.32     .02
                      54.68     49.34     48.27     40.44     29.45     1.76      33.58     .07
                      FRAGMENT  36.08                  SIEVED 18.21ROCK PERCENT  40.00
                                                        (23.39)      1
       27             35.45     33.78     31.72     28.20     17.52     1.39      47.55     .02
                      49.27     46.95     44.09     39.19     24.35     1.80      32.08     .27
                      FRAGMENT  32.60                  SIEVED 18.38ROCK PERCENT  38.34
                                                                     1
       36             33.00     26.11     24.17     23.94     20.06     1.33      49.81     .04
                      43.89     34.72     32.14     31.84     26.67     1.68      36.60     .04
                      FRAGMENT  25.60                  SIEVED 17.80ROCK PERCENT   2.13
                                                                     1
       49             28.71     21.60     19.33     18.41     14.55     1.52      42.64     .05
                      43.63     32.83     29.38     27.98     22.11     1.82      31.32     .05
                      FRAGMENT  21.08                  SIEVED 14.48ROCK PERCENT    .78


          1=FIST
          2=CORE
          3=LOOSE
```

LUCIEN VERY FINE SANDY LOAM (37,04,P,a and b)

Location: Pit a about 2560' E and 1500' S of NW cor. Sec. 27, T.22N, R.2E;
Pit b about 2470' E and 1420' S of NW cor. Sec. 27, T.22N, R.2E.
Vegetation and land use: Native grass
Topography: 3-5 percent slopes
Drainage: Moderate to rapid from surface
Parent Material: Soft sandstone and interbedded shales and clays of Permian system.
Described and sampled by: J. R. Culver and G. A. Schumaker

Horizon	Description
Pit a	
A1	0 to 7 inches. Reddish brown (2.5YR 4/3) very fine sandy loam, dark reddish brown (2.5YR 3/3) when moist; moderate, medium to fine, granular structure; very friable when moist, soft when dry; roots abundant; pH 6.0; clear boundary.
AC	7 to 16 inches. Reddish brown (2.5YR 4/4) heavy very fine sandy loam, dark reddish brown (2.5YR 3/4) when moist; moderate, medium, granular structure; friable when moist, slightly hard when dry; few fragments of soft weathered sandstone; roots abundant, worm casts common; pH 6.0; gradual boundary.
C	16 to 60 inches plus. Reddish brown (2.5YR 4/4) sandstone, dark reddish brown (2.5YR 3/4) when moist; horizon consists of interbedded fine-grained soft sandstone, silty shales and lenses of packsand; pH 6.0.
Pit b	
A1	0 to 7 inches. Reddish brown (5YR 4/3) very fine sandy loam, dark reddish brown (5YR 3/3) when moist; moderate, medium to fine, granular structure; very friable when moist, soft when dry; roots abundant; pH 6.0; clear boundary.
AC	7 to 15 inches. Reddish brown (2.5YR 4/4) very fine sandy loam, dark reddish brown (2.5YR 3/4) when moist; weak, medium, granular structure; friable when moist, slightly hard when dry; small fragments of weathered sandstone present; roots abundant; pH 6.0; gradually wavy boundary.
R	15 to 60 inches plus. Reddish brown (2.5YR 4/4) soft sandstone, dark reddish brown (2.5YR 3/4) when moist; this horizon contains interbedded sandstone and silty shales; roots able to penetrate through cracks of sandstone; pH 6.5.

LUCIEN VERY FINE SANDY LOAM (37,04,P,a and b)

WEIGHT PERCENT AND VOLUME PERCENT OF WATER RETAINED

IDENTIFICATION	TENSIONS (BARS)							
37 4 1 1	.1	.3	.6	3.	15.	BD G/CC	TP PCT	K IN/HR
DEPTH								
0	22.13	16.66	16.03	15.56	9.23	1.48[1]	44.15	1.09
	32.75	24.65	23.72	23.02	13.66	1.55	41.51	.55
	FRAGMENT	16.92		SIEVED	7.48ROCK	PERCENT	.76	
7	25.71	17.68	16.88	15.97	9.32	1.52[1]	42.64	.77
	39.07	26.87	25.65	24.27	14.16	1.61	39.25	1.06
	FRAGMENT	16.94		SIEVED	8.30ROCK	PERCENT	4.92	
16	18.55	15.64	15.41	12.10	6.27	1.63[1]	38.49	.29
	30.23	25.49	25.11	19.72	10.22	1.75	33.96	.31
	FRAGMENT	15.02		SIEVED	4.94ROCK	PERCENT	8.13	

IDENTIFICATION	TENSIONS (BARS)							
37 4 1 2	.1	.3	.6	3.	15.	BD G/CC	TP PCT	K IN/HR
DEPTH								
0	22.22	18.09	15.68	15.06	8.36	1.44[1]	45.66	.49
	31.99	26.04	22.57	21.68	12.03	1.52	42.64	.69
	FRAGMENT	17.84		SIEVED	8.42ROCK	PERCENT	2.97	
7	21.59	19.70	15.67	14.52	8.23	1.41[1]	46.79	1.31
	30.44	27.77	22.09	20.47	11.60	1.49	43.77	.60
	FRAGMENT	18.66		SIEVED	8.35ROCK	PERCENT	3.28	
15	18.95	17.91	15.34	13.29	6.81	1.63[1]	38.49	.30
	30.88	29.19	25.00	21.66	11.10	1.67	36.98	.30
	FRAGMENT	17.18		SIEVED	5.92ROCK	PERCENT	5.58	

1=FIST
2=CORE
3=LOOSE

NORGE SILT LOAM (37,06,P,a)

Location: About 2860' W and 800'N of SE corner of Sec. 27, T.22N, R.2E.
Vegetation and land use: Native grass
Topography: Gently sloping upland, 2 percent slope
Drainage: Moderate from surface
Parent Material: Neutral to alkaline, old loamy alluvial sediments
Described and sampled by: J. R. Culver and G. A. Schumaker

Horizon	Description
A1	0 to 10 inches. Brown (7.5YR 4/2) loam, dark brown (7.5YR 3/2) when moist; moderate, medium, granular structure; friable when moist, hard when dry; worm casts and roots abundant; pH 6.0; gradual boundary.
B1	10 to 15 inches. Brown (7.5YR 4/4) heavy loam, dark brown (7.5YR 3/2) when moist; moderate, medium, granular structure; friable when moist, slightly hard when dry; worm casts and roots abundant; numerous fine single grain sand particles; pH 6.0; clear boundary.
B2t	15 to 29 inches. Reddish brown (5YR 4/4) clay loam, dark reddish brown (5YR 3/4) when moist; moderate, medium, subangular blocky structure; friable when moist, very hard when dry; many single quartz grains; roots abundant; pH 6.0; gradual boundary.
B3	29 to 49 inches. Reddish brown (5YR 4/4) sandy clay loam, dark reddish brown (5YR 3/4) when moist; strong, coarse, prismatic structure; friable when moist, very hard when dry; roots more common along vertical ped surfaces; numerous medium size sand grains dispersed through soil mass; pH 6.0; gradual boundary.
C	49 to 60 inches. Yellowish red (5YR 5/6) light sandy clay loam, yellowish red (5YR 4/6) when moist; porous massive structure; very friable when moist, slightly hard when dry; numerous small gravel size rounded quartz; few fine roots; pH 6.0.

Remarks: This mapping unit is listed as Norge silt loam, 1-5 percent slopes in the Noble County Soil Survey Report. The loam surface texture of this profile is the central concept of the Norge Series. All areas within the watershed are of the loam type.

STILLWATER, OKLAHOMA

NORGE SILT LOAM (37,06,P,a)

WEIGHT PERCENT AND VOLUME PERCENT OF WATER RETAINED

IDENTIFICATION	TENSIONS (BARS)							
37 6 1 1	.1	.3	.6	3.	15.	BD G/CC	TP PCT	K IN/HR
DEPTH						1		
0	21.16	15.69	13.48	11.36	7.52	1.51	43.02	1.70
	31.95	23.69	20.35	17.15	11.35	1.58	40.38	.80
	FRAGMENT	14.22		SIEVED	6.43ROCK	PERCENT		
						1		
10	23.52	15.55	14.60	13.31	8.78	1.49	43.77	1.08
	35.04	23.16	21.75	19.83	13.08	1.61	39.25	1.70
	FRAGMENT	15.11		SIEVED	8.90ROCK	PERCENT	21.86	
						1		
15	23.28	18.93	17.95	17.29	11.79	1.52	42.64	1.20
	35.38	28.77	27.28	26.28	17.92	1.70	35.85	1.14
	FRAGMENT	18.82		SIEVED	12.17ROCK	PERCENT	10.86	
						1		
29	17.58	15.87	15.23	14.84	9.13	1.68	36.60	.54
	29.53	26.66	25.58	24.93	15.33	1.82	31.32	.58
	FRAGMENT	15.29		SIEVED	10.09ROCK	PERCENT	18.56	
						1		
49	19.68	16.66	15.51	13.20	8.93	1.65	37.74	.11
	32.47	27.48	25.59	21.78	14.73	1.86	29.81	.02
	FRAGMENT	17.49		SIEVED	9.56ROCK	PERCENT	13.84	

1=FIST
2=CORE
3=LOOSE

NORGE SILT LOAM (37,06,P,b)

Location: About 2875' W and 975' N of SE corner of Sec. 27, T.22N, R.2E.
Vegetation and land use: Native grass
Topography: Gently sloping upward, 2.3 percent slope.
Drainage: Moderate from surface
Parent Material: Neutral to alkaline, old loamy alluvial sediments
Described and sampled by: J. R. Culver and G. A. Schumaker

Horizon	Description
A1	0 to 9 inches. Brown (7.5YR 4/2) loam, dark brown (7.5YR 3/2) when moist; moderate, medium, granular structure; friable when moist, slightly hard when dry; worm casts, roots, and pinholes abundant; pH 6.0; gradual boundary.
B1	9 to 16 inches. Brown (7.5YR 4/4) light clay loam, dark brown (7.5YR 3/2) when moist; strong, medium, granular structure; friable when moist, slightly hard when dry; worm casts and roots abundant; numerous fine single grain sand particles; pH 6.0; clear boundary.
B2t	16 to 28 inches. Reddish brown (5YR 4/4) clay loam, dark reddish brown (5YR 3/4) when moist; coarse prismatic structure which breaks down to moderate, medium, granular structure; friable when moist, hard when dry; colloidal varnish along many vertical ped faces, roots abundant, worm casts common; pH 6.0; gradual boundary.
B3	28 to 44 inches. Red (2.5YR 4/6) sandy clay loam, dark red (2.5YR 3/6) when moist; strong, coarse prismatic structure; friable when moist, very hard when dry; roots common along vertical ped faces, slightly darker coating of finer soil material along faces of prisms; numerous medium size sand grains scattered through soil mass; pH 6.5; gradual boundary.
C	44 to 60 inches plus. Red (2.5YR 4/6) sandy loam, dark red (2.5YR 3/6) when moist; massive structure; loose when moist; very hard when dry; few worm casts; numerous small size gravel; pH 6.5.

Remarks: This mapping unit is listed as Norge silt loam, 1-5 percent slopes in the Noble County Soil Survey Report. The loam surface texture of this profile is well within the range of characteristics of the series. Areas examined within the watersheds are of the loam type.

NORGE SILT LOAM (37,06,P,b)

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      WEIGHT  PERCENT  AND  VOLUME  PERCENT  OF  WATER  RETAINED

IDENTIFICATION        T E N S I O N S  (BARS)
                                                              BD       TP       K
37   6   1   2     .1       .3       .6       3.      15.    G/CC     PCT     IN/HR

    DEPTH                                                       1
     0             22.52    16.47    14.74    14.17    11.69    1.50    43.40    1.12
                   33.78    24.70    22.11    21.25    17.53    1.58    40.38    1.39
                   FRAGMENT 16.40              SIEVED   8.97ROCK PERCENT  2.80
                                                                1
     9             23.11    17.99    14.28    13.20    11.03    1.55    41.51    1.47
                   35.82    27.88    22.13    20.46    17.09    1.66    37.36    1.19
                   FRAGMENT 16.21              SIEVED   9.95ROCK PERCENT  8.18
                                                                1
    16             22.66    19.20    18.94    18.05    12.81    1.64    38.11     .80
                   37.16    31.48    31.06    29.60    21.00    1.70    35.85     .74
                   FRAGMENT 19.76              SIEVED  13.04ROCK PERCENT 13.21
                                                                1
    28             17.44    16.81    13.68    12.28     8.43    1.74    34.34     .18
                   30.34    29.24    23.80    21.36    14.66    1.87    29.43     .25
                   FRAGMENT 15.23              SIEVED   9.89ROCK PERCENT 16.10
                                                                1
    44             10.34     8.52     7.36     6.28     3.64    1.78    32.83     .63
                   18.40    15.16    13.10    11.17     6.47    1.84    30.57    1.05
                   FRAGMENT  8.54              SIEVED   4.68ROCK PERCENT 11.38

      1=FIST
      2=CORE
      3=LOOSE
```

STILLWATER, OKLAHOMA

RENFROW SILT LOAM (37,07,P,a and b)

Location: Pit a about 2700' W and 235' N of SE cor. of Sec. 27, T.22N, R.2E;
Pit b about 2550' W and 225' N of SE cor. of Sec. 27, T.22N, R.2E.
Vegetation and land use: Native grass
Topography: Undulating upland, 3.6 percent slope
Drainage: Rapid from surface
Parent Material: Red calcareous shales and clays of Permian system.
Described and sampled by: J. R. Culver and G. A. Schumaker

Horizon	Description
Pit a	
A1	0 to 12 inches. Brown (7.5YR 4/2) silt loam, dark brown (7.5YR 3/2) when moist; moderate, medium to strong, granular structure; friable when moist, slightly hard when dry; roots abundant; pH 6.5; clear boundary.
B2t	12 to 27 inches. Reddish brown (5YR 4/3) clay, dark reddish brown (5YR 3/3) when moist; moderate, medium to fine, granular structure; plastic when moist, extremely hard when dry; clay skins distinct; single quartz grains distributed throughout profile; few fine roots; pH 7.0; gradual boundary.
B3	27 to 40 inches. Reddish brown (5YR 4/4) clay, dark reddish brown (5YR 3/4) when moist; weak blocky to massive structure; plastic when moist, extremely hard when dry; a few black shotlike ferruginous concretions present; calcium carbonate concretions; few single quartz grains; pH 8.0; gradual boundary.
C	40 to 60 inches plus. Reddish brown (2.5YR 4/4) clay, dark reddish brown (2.5YR 3/4) when moist; calcareous clay beds of the Permian Redbeds--some natural horizontal cleavage planes which have a colloidal varnish.
Pit b	
A1	0 to 9 inches. Brown (7.5YR 4/2) silt loam, dark brown (7.5YR 3/2) when moist; moderate, medium to strong, granular structure; friable when moist, slightly hard when dry; roots abundant; pH 6.0; clear boundary.
B2t	9 to 24 inches. Reddish brown (5YR 4/3) clay, dark reddish brown (5YR 3/3) when moist; weak, fine to medium, blocky structure; clay skins common; extremely firm when moist, extremely hard when dry; very slowly permeable; fine roots along ped faces; few single quartz grains scattered throughout soil mass; pH 7.0; gradual boundary.
B3	24 to 32 inches. Reddish brown (5YR 4/4) clay, dark reddish brown (5YR 3/4) when moist; weak, fine blocky to massive structure; very slowly permeable; extremely firm when moist and extremely hard when dry; calcium carbonate concretions common; single quartz grains in soil mass; pH 8.0; gradual boundary.
C	32 to 60 inches plus. Reddish brown (2.5YR 4/4) clay, dark reddish brown (2.5YR 3/4) when moist; massive structure; upper portions slightly calcareous weathered clay beds of Permian formation, lower part essentially unaltered calcareous clay beds.

STILLWATER, OKLAHOMA

RENFROW SILT LOAM (37,07,P,a and b)

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      WEIGHT  PERCENT  AND  VOLUME  PERCENT  OF  WATER  RETAINED

IDENTIFICATION          T E N S I O N S  (BARS)
                                                              BD        TP        K
37   7   1   1       .1        .3        .6        3.       15.       G/CC      PCT     IN/HR

     DEPTH                                                     1
      0            25.00     24.50     21.36     20.24     17.30     1.41      46.79     .12
                   35.25     34.54     30.11     28.53     24.39     1.62      38.87     .39
                   FRAGMENT  22.13                SIEVED   15.94ROCK PERCENT  27.94
                                                                   1
     12            28.98     27.35     25.92     23.80     19.20     1.39      47.55     .23
                   40.28     38.01     36.02     33.08     26.68     1.64      38.11     .10
                   FRAGMENT  26.92                SIEVED   20.61ROCK PERCENT  33.03
                                                                   1
     27            28.28     27.82     23.41     22.09     18.49     1.52      42.64     .07
                   42.98     42.28     35.58     33.57     28.10     1.88      29.06     .18
                   FRAGMENT  25.31                SIEVED   17.24ROCK PERCENT   4.29
                                                                   1
     40            23.07     20.79     20.12     19.09     15.52     1.56      41.13     .12
                   35.98     32.43     31.38     29.78     24.21     1.89      28.68     0
                   FRAGMENT  19.52                SIEVED   14.08ROCK PERCENT  27.54


IDENTIFICATION          T E N S I O N S  (BARS)
                                                              BD        TP        K
37   7   1   2       .1        .3        .6        3.       15.       G/CC      PCT     IN/HR

     DEPTH                                                         1
      0            27.23     24.18     20.83     19.58     18.77     1.37      48.30     .90
                   37.30     33.12     28.53     26.82     25.71     1.54      41.89     .67
                   FRAGMENT  24.77                SIEVED   13.20ROCK PERCENT   4.47
                                                          (16.86)  1
      9            28.03     25.00     22.72     21.51     15.24     1.48      44.15     .58
                   41.48     37.00     33.62     31.83     22.55     1.64      38.11     .36
                   FRAGMENT  24.85                SIEVED   16.93ROCK PERCENT  21.57
                                                                   1
     24            26.28     24.78     21.16     20.98     14.47     1.43      46.04     .25
                   37.58     35.43     30.25     30.00     20.69     1.85      30.19     .04
                   FRAGMENT  23.24                SIEVED   14.48ROCK PERCENT  24.09
                                                                   1
     32            29.69     26.77     23.20     19.79     14.76     1.50      43.40     0
                   44.53     40.15     34.80     29.68     22.14     1.80      32.08     .01
                   FRAGMENT  24.20                SIEVED   16.87ROCK PERCENT  42.40


       1=FIST
       2=CORE
       3=LOOSE
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RENFROW SILTY CLAY LOAM (37,08,P,a and b)

Location: Pit a about 550' N and 230' W of SE cor. of Sec. 27, T.22N, R.2E;
Pit b about 500' N and 125' W of SE cor. of Sec. 27, T.22N, R.2E.
Vegetation and land use: Native grass
Topography: Undulating upland, 2 to 4 percent slopes
Drainage: Moderate from surface; very slow internally.
Parent Material: Clayey Permian system redbeds.
Described and sampled by: J. R. Culver and G. A. Schumaker

Horizon	Description
Pit a	
A1	0 to 10 inches. Reddish brown (5YR 4/3) silty clay loam, dark reddish brown (5YR 3/3) when moist; moderate, medium to fine granular structure; friable when moist, hard when dry; roots abundant; pH 6.0; clear boundary.
B2t	10 to 24 inches. Reddish brown (5YR 4/3) clay, dark reddish brown (5YR 3/3);moderate, fine to medium, blocky structure; very firm when moist, extremely hard when dry; clay skins distinct; fine roots along ped faces; pH 7.0; gradual boundary.
B3	24 to 37 inches. Reddish brown (2.5YR 4/4) clay, dark reddish brown (2.5YR 3/4) when moist; weak, fine, blocky structure to massive structure; extremely firm when moist, extremely hard when dry; few fine roots; calcium carbonate concretions; pH 8.0; gradual boundary.
C	37 to 60 inches plus. Reddish brown (2.5YR 4/4) clay dark reddish brown (2.5YR 3/4) when moist; massive structure; calcareous clay beds of Permian formation; unweathered.
Pit b	
A1	0 to 10 inches. Reddish brown (5YR 4/3) silty clay loam, dark reddish brown (5YR 3/4) when moist; moderate, medium, granular structure; friable when moist, slightly hard when dry; roots abundant; pH 6.5; clear boundary.
B2t	10 to 25 inches. Reddish brown (5YR 4/3) clay, dark reddish brown (5YR 3/3) when moist; moderate, medium to fine, blocky structure; plastic when wet, extremely hard when dry; clay skins on surface of peds; very slowly permeable; fine roots along ped faces; pH 7.0; gradual boundary.
B3	25 to 34 inches. Reddish brown (5YR 4/3) clay, dark reddish brown (5YR 3/3) when moist; weak, fine, blocky to massive structure; plastic when moist, extremely hard when dry; few calcium carbonate concretions; few fine roots; pH 8.0; gradual boundary.
C	34 to 60 inches plus. Reddish brown (2.5YR 4/4) clay, dark reddish brown (2.5YR 3/4) when moist; massive structure; calcareous clay beds of the Permian formation, upper part slightly weathered, lower part unweathered.

RENFROW SILTY CLAY LOAM (37,08,P,a and b)

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     WEIGHT  PERCENT  AND  VOLUME  PERCENT  OF  WATER  RETAINED

IDENTIFICATION        T E N S I O N S  (BARS)
                                                          BD       TP       K
37   8   1   1     .1       .3       .6       3.       15.      G/CC      PCT     IN/HR

     DEPTH                                                         1
      0            24.77    21.42    18.64    16.52    14.02     1.42     46.42     .29
                   35.17    30.41    26.46    23.45    19.90     1.52     42.64     .44
                   FRAGMENT 22.20               SIEVED  9.87ROCK PERCENT 10.14
                                                       (11.25)     1
      10           26.05    25.60    21.67    19.99    18.39     1.52     42.64     .43
                   39.59    38.91    32.93    30.38    27.95     1.79     32.45     .47
                   FRAGMENT 24.84               SIEVED 14.59ROCK PERCENT
                                                                   1
      24           25.69    25.58    24.06    19.37    15.25     1.53     42.26     0
                   39.30    39.13    36.81    29.63    23.33     1.80     32.08
                   FRAGMENT 24.05               SIEVED 14.17ROCK PERCENT 24.16
                                                                   1
      37           29.65    28.21    24.46    21.47    16.93     1.46     44.91     .10
                   43.28    41.18    35.71    31.34    24.71     1.91     27.92     .02
                   FRAGMENT 26.22               SIEVED 16.66ROCK PERCENT   .77

IDENTIFICATION        T E N S I O N S  (BARS)
                                                          BD       TP       K
37   8   1   2     .1       .3       .6       3.       15.      G/CC      PCT     IN/HR

     DEPTH                                                         1
      0            27.48    22.46    21.68    19.32    14.38     1.35     49.06     .29
                   37.09    30.32    29.26    26.08    19.41     1.51     43.02     .62
                   FRAGMENT 22.55               SIEVED 13.30ROCK PERCENT  5.61
                                                                   1
      10           30.15    26.47    24.43    23.72    17.30     1.50     43.40     .26
                   45.22    39.70    36.64    35.58    25.95     1.86     29.81     .20
                   FRAGMENT 24.28               SIEVED 17.93ROCK PERCENT  7.30
                                                                   1
      25           31.18    28.45    27.85    24.38    16.93     1.51     43.02     .17
                   47.08    42.95    42.05    36.81    25.56     1.93     27.17     .07
                   FRAGMENT 26.60               SIEVED 17.30ROCK PERCENT 19.28
                                                                   1
      34           26.80    25.46    23.53    21.95    17.06     1.53     42.26     0
                   41.00    38.95    36.00    33.58    26.10     1.91     27.92     .02
                   FRAGMENT 25.74               SIEVED 15.96ROCK PERCENT  1.27

        1=FIST
        2=CORE
        3=LOOSE
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VERNON CLAY LOAM (37,09,P,a and b)

Location: Pit a about 1600' S and 150' W of NE cor. of Sec. 34, T.22N, R.2E;
Pit b about 1690' S and 90' W of NE cor. of Sec. 34, T.22N, R.2E.
Vegetation and land use: Native grass
Topography: 4 to 10 percent slopes
Drainage: Rapid from surface
Parent Material: Red calcareous shales and clays of Permian system.
Described and sampled by: J. R. Culver and G. A. Schumaker

Horizon	Description
Pit a	
A1	0 to 6 inches. Reddish brown (5YR 4/3) light clay, dark reddish brown (5YR 3/3) when moist; weak, medium, granular structure to massive structure; very firm when moist, extremely hard when dry; fragments of siltstone and calcium carbonate concretions on surface of ground; roots common; calcareous; clear boundary.
AC	6 to 26 inches. Reddish brown (2.5YR 4/4) clay, dark reddish brown (2.5YR 3/4) when moist; essentially unaltered clayey "redbeds"; calcium carbonate concretions; few roots; strongly calcareous; gradual boundary.
R	26 to 60 inches plus. Reddish brown (2.5YR 4/4) unweathered clayey shale of Permian redbeds, dark reddish brown (2.5YR 3/4) when moist; the above horizon is primarily clay while this horizon is mostly soft shale; this difference due to nature of geological deposition and not factors of soil formation; strongly calcareous.
Pit b	
A1	0 to 6 inches. Reddish brown (5YR 4/3) heavy clay loam, dark reddish brown (5YR 3/3) when moist; weak, medium, granular structure to massive structure; firm when moist, very hard when dry; fragments of siltstone and shale on surface of ground; calcareous; clear boundary.
AC	6 to 16 inches. Reddish brown (5YR 4/3) clay, dark reddish brown (5YR 3/3) when moist; weak, fine to medium, blocky structure approaching massive structure; very firm when moist, extremely hard when dry; calcareous; gradual boundary.
R	16 to 60 inches plus. Reddish brown (2.5YR 4/4) clay, dark reddish brown (2.5YR 3/4) when moist; massive structure; compact; essentially unaltered clayey Permian redbeds; calcium carbonate concretions; strongly calcareous.

Remarks: This mapping unit is listed as Vernon clay loam, 4 to 10 percent slopes in the Noble County Soil Survey Report. The described profile is within the range in characteristics for the mapping unit. This site represents the more clayey and less developed areas of the mapping unit.

VERNON CLAY LOAM (37,09,P,a and b)

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      WEIGHT  PERCENT  AND  VOLUME  PERCENT  OF  WATER  RETAINED

IDENTIFICATION        T E N S I O N S  (BARS)
                                                              BD        TP       K
37   9   1   1      .1       .3       .6       3.       15.      G/CC      PCT    IN/HR

     DEPTH                                                       1
      0            38.26    36.61    29.87    28.95    21.32    1.40     47.17     .16
                   53.56    51.25    41.81    40.53    29.84    1.80     32.08     .15
                   FRAGMENT 35.38               SIEVED 18.14ROCK PERCENT  3.05
                                                                 1
      6            33.33    26.47    26.17    23.36    18.26    1.57     40.75     .10
                   52.32    41.55    41.08    36.67    28.66    1.83     30.94     .08
                   FRAGMENT 24.41               SIEVED 16.16ROCK PERCENT 20.62
                                                                 1
     26            22.69    19.35    18.99    16.88    14.68    1.69     36.23     0
                   38.34    32.70    32.09    28.52    24.80    1.88     29.06     .02
                   FRAGMENT 20.37               SIEVED 18.50ROCK PERCENT 31.55

IDENTIFICATION        T E N S I O N S  (BARS)
                                                              BD        TP       K
37   9   1   2      .1       .3       .6       3.       15.      G/CC      PCT    IN/HR

     DEPTH                                                       1
      0            33.91    32.30    29.03    27.48    22.05    1.31     50.57     .57
                   44.42    42.31    38.02    35.99    28.88    1.72     35.09    1.48
                   FRAGMENT 31.53               SIEVED 23.98ROCK PERCENT 65.47
                                                                 1
      6            32.54    27.45    25.52    25.44    20.25    1.50     43.40     .34
                   48.81    41.17    38.28    38.16    30.37    1.79     32.45     .49
                   FRAGMENT 26.52               SIEVED 21.42ROCK PERCENT 52.50
                                                                 1
     16            38.86    33.66    28.96    28.57    18.35    1.52     42.64     .06
                   59.06    51.16    44.01    43.42    27.89    1.86     29.81     .02
                   FRAGMENT 32.77               SIEVED 19.06ROCK PERCENT 60.70

        1=FIST
        2=CORE
        3=LOOSE
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ABILENE CLAY LOAM (39,01,C,a)

Location: Spur Experiment Station; 150' S and 50' W of the NE corner plot #11, as on old map furnished by ARS.
Vegetation and land use: Sorghum residue
Topography: 0.4 to 0.7 percent slope
Drainage: Well drained
Parent Material: Old Alluvium (Quaternary or Tertiary) derived from Triassic Redbeds
Described and sampled by: C. L. Girdner and G. A. Schumaker

Horizon	Description
Ap	0 to 5 inches. Brown (10YR 4/3) clay loam, dark brown (10YR 3/3) when moist; weak granular structure; hard when dry, friable when moist; noncalcareous and mildly alkaline; abrupt boundary.
B1	5 to 13 inches. Dark grayish brown (10YR 4/2) heavy clay loam, very dark grayish brown (10YR 3/2) when moist; compound moderate very fine subangular blocky and moderate fine granular structure; very hard when dry, firm when moist; an estimated 5% of worm casts and fine pores; noncalcareous and mildly alkaline; gradual boundary.
B21t	13 to 36 inches. Brown (10YR 4/3) light clay, dark brown (10YR 3/3) when moist; compound moderate and strong fine and medium blocky structure; extremely hard when dry, extremely firm when moist; continuous clay skins on surface of peds; calcareous and mildly alkaline; diffuse boundary.
B22t	36 to 66 inches. Brown (7.5YR 4/4) light clay, dark brown (7.5YR 3/4) when moist; moderate medium subangular blocky structure; very hard when dry, very firm when moist; patchy clay skins; calcareous and moderately alkaline; diffuse boundary.
Cca	66 to 72 inches plus. Brown (7.5YR 5/4) clay loam, slightly darker brown (7.5YR 4/4) when moist; moderate fine subangular blocky structure; hard when dry, friable when moist; an estimated 10% of $CaCO_3$ segregations; calcareous and moderately alkaline.

SPUR, TEXAS

ABILENE CLAY LOAM (39,01,C,a)

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     WEIGHT  PERCENT  AND  VOLUME  PERCENT  OF  WATER  RETAINED

IDENTIFICATION        T E N S I O N S  (BARS)
                                                                      BD        TP       K
39   1   2   1      .1        .3        .6        3.        15.      G/CC      PCT    IN/HR

     DEPTH                                                            3
      0             35.48     26.00     25.78     19.83     16.60     1.10      58.49
                    39.02     28.60     28.35     21.81     18.26
                    FRAGMENT                        SIEVED 18.04ROCK PERCENT  2.03
                                                                      1
      5             36.43     28.10     26.05     23.64     19.64     1.33      49.81     .05
                    48.45     37.37     34.64     31.44     26.12     1.62      38.87     .06
                    FRAGMENT 28.62                  SIEVED 21.25ROCK PERCENT  2.53
                                                                      1
     13             36.53     29.41     26.38     22.22     19.87     1.34      49.43     .22
                    48.95     39.40     35.34     29.77     26.62     1.59      40.00     .11
                    FRAGMENT 29.04                  SIEVED 26.36ROCK PERCENT 20.09
                                                                      1
     36             28.57     27.67     24.60     22.62     19.84     1.45      45.28     .13
                    41.42     40.12     35.67     32.79     28.76     1.77      33.21     .16
                    FRAGMENT 25.58                  SIEVED 18.92ROCK PERCENT  1.00


     1=FIST
     2=CORE
     3=LOOSE
```

ABILENE CLAY LOAM (39,01,C,b)

Location: Spur Experiment Station; 350' S and 50' W of the NE corner Plot #11, as on old map furnished by ARS.
Vegetation and land use: Sorghum residue
Topography: 0.4 to 0.5 percent slope
Drainage: Well drained
Parent Material: Old Alluvium (Quaternary or Tertiary) derived from Triassic Redbeds
Described and sampled by: C. L. Girdner and G. A. Schumaker

Horizon	Description
Ap	0 to 5 inches. Dark grayish brown (10YR 4/2) clay loam, very dark grayish brown (10YR 3/2) when moist; weak granular structure; hard when dry, friable when moist; calcareous and mildly alkaline; abrupt boundary.
B1	5 to 13 inches. Dark grayish brown (10YR 4/2) heavy clay loam, very dark grayish brown (10YR 3/2) when moist; compound moderate very fine subangular blocky and moderate fine granular structure; very hard when dry, firm when moist; an estimated 5% of worm casts and fine pores; calcareous and mildly alkaline; gradual boundary.
B21t	13 to 27 inches. Brown (10YR 4/3) light clay, dark brown (10YR 3/3) when moist; moderate fine and medium blocky structure; extremely hard when dry, extremely firm when moist; evident clay skins; calcareous and mildly alkaline; diffuse boundary.
B22t	27 to 37 inches. Dark grayish brown (10YR 4/2) light clay, very dark grayish brown (10YR 3/2) when moist; moderate fine and medium blocky structure; extremely hard when dry, extremely firm when moist; an estimated 3% of $CaCO_3$ segregations; calcareous and moderately alkaline; clear boundary.
Cca	37 to 60 inches. Light gray (10YR 7/1) clay loam, gray (10YR 6/1) when moist; moderate very fine blocky structure; hard when dry; friable when moist; an estimated 25% of impure gypsum crystals; calcareous and moderately alkaline.

ABILENE CLAY LOAM (39,01,C,b)

WEIGHT PERCENT AND VOLUME PERCENT OF WATER RETAINED

IDENTIFICATION	TENSIONS (BARS)					BD	TP	K
39 1 2 2	.1	.3	.6	3.	15.	G/CC	PCT	IN/HR
DEPTH						3		
0	44.61	29.82	25.35	22.01	18.09	1.00	62.26	
	44.6	29.82	25.35	22.	8. 9			
	FRAGMENT			SIEVED	20.83ROCK	PERCENT	7.04	
						1		
5	29.69	28.30	25.00	22.65	20.68	1.36	48.68	.11
	40.37	38.48	34.00	30.80	28.12	1.66	37.36	.08
	FRAGMENT	26.33		SIEVED	19.11ROCK	PERCENT	.87	
						1		
13	36.12	27.47	25.31	22.88	19.72	1.35	49.06	.26
	48.76	37.08	34.16	30.88	26.62	1.65	37.74	.17
	FRAGMENT	28.66		SIEVED	19.22ROCK	PERCENT		
						1		
27	32.94	26.17	25.00	23.52	19.23	1.48	44.15	.09
	48.75	38.73	37.00	34.80	28.46	1.78	32.83	.07
	FRAGMENT	25.04		SIEVED	19.29ROCK	PERCENT	.80	
						1		
37	31.52	24.21	22.67	21.59	18.92	1.30	50.94	.91
	40.97	31.47	29.47	28.06	24.59	1.47	44.53	.15
	FRAGMENT	22.93		SIEVED	18.27ROCK	PERCENT	30.39	

1=FIST
2=CORE
3=LOOSE

TILLMAN CLAY LOAM (39,02,C,a)

Location: Spur Experiment Station; 650' W and 30' N of Headquarters Bldg.
Vegetation and land use: Bean residue
Topography: 0.4 to 1.2 percent slope
Drainage: Good
Parent Material: Clayey Triassic Redbeds
Described and sampled by: C. L. Girdner and G. A. Schumaker

Horizon	Description
Ap	0 to 7 inches. Reddish brown (5YR 5/3) clay loam, dark reddish brown (5YR 3/3) when moist; weak granular structure; hard when dry, friable when moist; weakly calcareous and mildly alkaline; abrupt boundary.
AB	7 to 12 inches. Reddish brown (5YR 5/3) clay loam, dark reddish brown (5YR 3/3) when moist; compound moderate very fine blocky and moderate fine granular structure; very hard when dry, firm when moist; an estimated 10% of worm casts and fine pores; weakly calcareous locally, noncalcareous in an estimated 60% of the mass and mildly alkaline throughout; clear boundary.
B21t	12 to 32 inches. Reddish brown (5YR 5/4) light clay, dark reddish brown (5YR 3/4) when moist; moderate medium blocky structure; extremely hard when dry, extremely firm when moist; evident clay skins; calcareous and mildly alkaline; gradual boundary.
B22t	32 to 42 inches. Reddish brown (2.5YR 5/4) light clay, slightly darker reddish brown (2.5YR 4/4) when moist; compound moderate medium blocky and moderate medium subangular blocky structure; very hard when dry, very firm when moist; patchy clay skins, an estimated 3% of $CaCO_3$ segregations; calcareous and mildly alkaline; gradual boundary.
Cca	42 to 54 inches. Red (2.5YR 5/6) clay loam, dark red (2.5YR 3/6) when moist; moderate very fine blocky structure; hard when dry, friable when moist; an estimated 15% of $CaCO_3$ segregations; calcareous and moderately alkaline; gradual boundary.
C	54 to 60 inches. Red (2.5YR 5/6) clay loam, dark red (2.5YR 3/6) when moist; moderate very fine blocky structure; hard when dry, friable when moist; an estimated 10% of $CaCO_3$ segregations.

SPUR, TEXAS

TILLMAN CLAY LOAM (39,02,C,a)

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     WEIGHT  PERCENT  AND  VOLUME  PERCENT  OF  WATER  RETAINED

IDENTIFICATION       T E N S I O N S  (BARS)
                                                                   BD       TP      K
39   2   2   1     .1       .3       .6       3.       15.      G/CC     PCT    IN/HR

     DEPTH                                                          3
      0           34.39    23.86    23.33    17.54    15.43    1.08    59.25
                  37.14    25.76    25.19    18.94    16.66
                  FRAGMENT                     SIEVED 14.29ROCK PERCENT  1.00
                                                                    1
      7           32.77    24.64    22.92    19.17    15.98    1.30    50.94    .54
                  42.60    32.03    29.79    24.92    20.77    1.54    41.89    .71
                  FRAGMENT 23.76               SIEVED 16.66ROCK PERCENT  2.12
                                                                    1
     12           27.43    22.54    21.76    19.44    16.45    1.48    44.15    .25
                  40.59    33.35    32.20    28.77    24.34    1.75    33.96    .15
                  FRAGMENT 23.89               SIEVED 15.18ROCK PERCENT
                                                                    1
     32           26.26    20.94    19.67    16.56    17.51    1.52    42.64    .11
                  39.91    31.82    29.89    25.17    26.61    1.85    30.19    .10
                  FRAGMENT 22.65               SIEVED 15.18ROCK PERCENT 23.11
                                                                    1
     42           19.70    17.40    15.42    11.27    10.09    1.60    39.62    .60
                  31.52    27.84    24.67    18.03    16.14    1.83    30.94    .49
                  FRAGMENT 16.10               SIEVED 10.46ROCK PERCENT 15.02


      1=FIST
      2=CORE
      3=LOOSE
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TILLMAN CLAY LOAM (39,02,C,b)

Location: Spur Experiment Station; 350' W and 400' N of Headquarters Bldg.
Vegetation and land use: Cotton residue
Topography: 0.3 to 0.5 percent slope
Drainage: Well drained
Parent Material: Clayey Triassic redbeds
Described and sampled by: C. L. Girdner and G. A. Schumaker

Horizon	Description
Ap	0 to 7 inches. Reddish brown (5YR 5/3) clay loam, dark reddish brown (5YR 3/3) when moist; weak granular structure; hard when dry, friable when moist; noncalcareous and mildly alkaline; abrupt boundary.
AB	7 to 11 inches. Reddish brown (5YR 5/3) heavy clay loam, dark reddish brown (5YR 3/3) when moist; compound moderate very fine and fine subangular blocky structure; very hard when dry, friable when moist; an estimated 10% of worm casts; noncalcareous and mildly alkaline; gradual boundary.
B21t	11 to 21 inches. Reddish brown (5YR 5/4) light clay, dark reddish brown (5YR 3/4) when moist; moderate medium blocky structure; extremely hard when dry, extremely firm when moist; thin clay skins over entire ped; calcareous and mildly alkaline; gradual boundary.
B22t	21 to 34 inches. Reddish brown (2.5YR 5/4) light clay, dark reddish brown (2.5YR 3/4) when moist; moderate medium blocky structure; extremely hard when dry, extremely firm when moist; thin clay skins and 7% by volume of $CaCO_3$ segregations; calcareous and mildly alkaline; diffuse boundary.
Cca	34 to 56 inches. Red (2.5YR 5/6) clay loam, dark red (2.5YR 3/6) when moist; moderate very fine blocky structure; hard when dry, friable when moist; an estimated 17% by volume of $CaCO_3$ segregations; calcareous and moderately alkaline; diffuse boundary.
C	56 to 84 inches. Red (2.5YR 5/6) clay loam, dark red (2.5YR 3/6) when moist; moderate very fine blocky structure; hard when dry, friable when moist; an estimated 6% of $CaCO_3$ segregations; calcareous and moderately alkaline.

TILLMAN CLAY LOAM (39,02,C,b)

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       WEIGHT  PERCENT  AND  VOLUME  PERCENT  OF  WATER  RETAINED

IDENTIFICATION        T E N S I O N S  (BARS)
                                                                    BD        TP        K
39   2   2   2     .1        .3        .6        3.        15.       G/CC      PCT      IN/HR

     DEPTH                                                              3
      0            34.24     20.79     18.39     14.58     12.01     1.09      58.87
                   37.32     22.66     20.04     15.89     13.09
                   FRAGMENT                         SIEVED 13.82ROCK PERCENT    .92
                                                                        1
      7            31.25     23.07     21.54     18.06     13.53     1.38      47.92     .10
                   43.12     31.83     29.72     24.92     18.67     1.54      41.89     .14
                   FRAGMENT  24.69                  SIEVED 14.67ROCK PERCENT   2.81
                                                                        1
     11            26.79     22.32     20.71     18.51     15.78     1.47      44.53     .46
                   39.38     32.81     30.44     27.20     23.19     1.73      34.72     .20
                   FRAGMENT  22.56                  SIEVED 16.01ROCK PERCENT   5.15
                                                                        1
     21            26.93     22.85     20.17     19.26     15.15     1.44      45.66     .15
                   38.77     32.90     29.04     27.73     21.81     1.68      36.60     .09
                   FRAGMENT  22.84                  SIEVED 16.43ROCK PERCENT   7.12
                                                                        1
     34            23.80     19.99     19.02     16.94     12.54     1.56      41.13     .69
                   37.12     31.18     29.67     26.42     19.56     1.81      31.70     .14
                   FRAGMENT  20.46                  SIEVED 13.13ROCK PERCENT   6.20


      1=FIST
      2=CORE
      3=LOOSE
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BOSWELL FINE SANDY LOAM (40,01,C,a)

Location: Texas Agr. Exp. Station, P1 Control Block, 200' W of repair shed.
Vegetation and land use: Pasture
Topography: 5 percent south convex slope
Drainage: Medium to slow
Parent Material: Acid sandy clays and sandy clay loams, probably of Claiborne group.
Described and sampled by: J. Thomas, G. Lane, G. A. Schumaker

Horizon	Description
Ap	0 to 2 inches. Dark brown (7.5YR 4/4) moist, fine sandy loam; weak granular; very friable moist, slightly hard dry, non-sticky wet; few ferruginous ironstone fragments and pebbles less than 1 inch in diameter; many fibrous roots; pH 8.0; clear boundary.
A2	2 to 9 inches. Yellowish red (5YR 5/6) moist, fine sandy loam; very weak granular structure; slightly hard dry, very friable moist, non-sticky wet; 5-10% ferruginous sandstone gravels and fragments; few fibrous roots; pH 6.5; abrupt boundary.
B21	9 to 18 inches. Red (2.5YR 4/6) moist,clay; contains a few fine faint yellowish brown (10YR 5/8) mottles; strong fine and very fine blocky structure; very hard dry, firm moist, plastic and sticky when wet; occasional ferruginous sandstone pebbles; few fibrous roots; pH 5.0; gradual boundary.
B22	18 to 33 inches. Red (2.5YR 4/6) moist, clay with abundant medium distinct mottles of yellowish brown (10YR 5/8) moist; a few fine prominent mottles of gray (10YR 6/1) moist; few streaks or root channels of black; moderate fine and medium blocky structure, breaking into occasional plates; few roots; few ferruginous sandstone pebbles; pH 4.5; very hard dry, firm moist, sticky wet; gradual boundary.
B3	33 to 40 inches. Mottled dark red (10R 3/6) gray (10YR 5/1) yellowish brown (10YR 5/6) moist, light clay; moderate fine blocky; very hard dry, firm moist, slightly sticky wet; few ferruginous sandstone pebbles; few root channels up to 3/8 inch in diameter which are surrounded by gray clay; pH 4.5; gradual boundary.
C2	40 to 60 inches plus. Stratified dark red and gray clay loam with streaks of yellowish brown, gray plates are more clayey than dark red; thin platy structure; occasional discontinuous layer of weathered glauconitic sandstone; gray roots channel continue; pH 4.5.

Remarks: The C horizon contains less clay than normally expected in Boswell. Area must have been limed.

BOSWELL FINE SANDY LOAM (40,01,C,a)

```
     WEIGHT  PERCENT  AND  VOLUME  PERCENT  OF  WATER  RETAINED

IDENTIFICATION          T E N S I O N S  (BARS)
                                                                        BD        TP        K
40   1   1   1      .1        .3        .6        3.        15.       G/CC      PCT      IN/HR

    DEPTH                                                                  3
     0              26.39     19.99     10.57      9.46     6.03      1.49     43.77
                    39.32     29.78     15.74     14.09     8.98
                    FRAGMENT                       SIEVED   6.58ROCK  PERCENT  38.23
                                                                           3
     2              22.49     20.88      8.22      6.72     4.38      1.54     41.89
                    34.63     32.15     12.65     10.34     6.74
                    FRAGMENT                       SIEVED   3.33ROCK  PERCENT  36.54
                                                                           1
     9              34.39     32.21     29.53     28.88    22.63      1.30     50.94     1.13
                    44.70     41.87     38.38     37.54    29.41      1.54     41.89      .50
                    FRAGMENT  32.85                SIEVED  22.27ROCK  PERCENT  24.72
                                                                           1
    18              36.02     35.60     32.72     28.44    25.46      1.28     51.70     1.32
                    46.10     45.56     41.88     36.40    32.58      1.48     44.15     1.58
                    FRAGMENT  34.14                SIEVED  25.50ROCK  PERCENT   3.97
                                                                           1
    33              35.71     34.17     28.67     24.66    19.39      1.23     53.58      .60
                    43.92     42.02     35.26     30.33    23.84      1.40     47.17     1.97
                    FRAGMENT   3.49                SIEVED  20.31ROCK  PERCENT  45.28
                                                                           1
    40              29.43     26.49     26.35     22.77    18.82      1.33     49.81      .05
                    39.14     35.23     35.04     30.28    25.03      1.44     45.66      .40
                    FRAGMENT  28.92                SIEVED  18.18ROCK  PERCENT  11.07

       1=FIST
       2=CORE
       3=LOOSE
```

BOSWELL FINE SANDY LOAM (40,01,C,b)

Location: Texas Agr. Exp. Station, P1 control block, 250' W of repair shed.
Vegetation and land use: Pasture
Topography: 5 percent south convex slope
Drainage: Medium to slow
Parent Material: Acid sandy clays and sandy clay loams, probably of the Claiborne group.
Described and sampled by: J. Thomas, G. Land, G. A. Schumaker

Horizon	Description
Ap	0 to 7 inches. Light brown (7.5YR 6/4) brown (7.5YR 4/4) moist fine sandy loam; weak granular structure; slightly hard, very friable moist, non-sticky wet; 2-5% Fe stone and glauconitic sandstone fragments 1/2 to 2 inches in diameter; few fibrous roots; a few brownish spots around some fragments; top 2 inches are slightly darker; pH 5.5; abrupt boundary.
B21	7 to 17 inches. Red (2.5YR 4/6) moist clay; moderate fine blocky; very hard dry, firm moist, sticky and plastic wet; contains a few pebbles as in horizon above; many fibrous roots; pH 5.3; gradual smooth boundary.
B22	17 to 29 inches. Red (2.5YR 4/6) moist clay; contains common medium distinct yellowish brown (10YR 5/8) moist, and few fine faint dark red, moist, mottles; weak fine and very fine blocky structure; same consistence as horizon above; glauconitic pebbles increase in number, ironstone fragments decrease; contains fewer roots than horizon above; pH 5.0; gradual smooth boundary.
B3	29 to 38 inches. Mottled dark red (10R 3/6) gray (10YR 6/1) and yellowish brown (10YR 5/8), all moist, clay; moderate fine blocky and weak fine platy; very hard dry, firm moist, slightly sticky wet; contains a few roots; contains more glauconitic fragments than horizon above; pH 5.0; gradual smooth boundary.
C	38 to 64 inches. Stratified dark red and gray clay loam with streaks of yellowish brown; platy structure, the gray plates being more clayey than the dark red; occasional discontinuous layer of weathered glauconitic sandstone; pH 4.5.
R	64 to 65 inches plus. Strongly cemented ferruginous sandstone containing some glauconite.

Remarks: The C horizon contains less clay than normally expected.

BOSWELL FINE SANDY LOAM (40,01,C,b)

```
       WEIGHT  PERCENT  AND  VOLUME  PERCENT  OF  WATER  RETAINED

IDENTIFICATION         T E N S I O N S  (BARS)
                                                                 BD       TP      K
40   1   1   2     .1       .3       .6       3.       15.      G/CC     PCT    IN/HR

     DEPTH                                                          3
       0          22.08    20.91    10.17     7.45     4.90     1.47    44.53
                  32.45    30.73    14.94    10.95     7.20
                  FRAGMENT                     SIEVED   6.29ROCK PERCENT 34.69
                                                                    1
       7          34.41    32.31    31.44    30.34    24.48     1.37    48.30     .65
                  47.14    44.26    43.07    41.56    33.53     1.56    41.13     .47
                  FRAGMENT 30.94               SIEVED  20.80ROCK PERCENT 41.67
                                                                    1
      17          38.29    37.20    32.14    29.70    24.58     1.23    53.58    1.00
                  47.09    45.75    39.53    36.53    30.23     1.44    45.66     .88
                  FRAGMENT 37.02               SIEVED  28.90ROCK PERCENT  9.29
                                                                    1
      29          33.83    33.15    30.46    28.35    24.20     1.30    50.94     .74
                  43.97    43.09    39.59    36.85    31.46     1.58    40.38     .36
                  FRAGMENT 31.98               SIEVED  22.37ROCK PERCENT  4.76
                                                                    1
      38          26.13    24.64    23.33    20.94    16.54     1.38    47.92     .32
                  36.05    34.00    32.19    28.89    22.82     1.55    41.51     .31
                  FRAGMENT 22.43               SIEVED  18.98ROCK PERCENT 23.17

       1=FIST
       2=CORE
       3=LOOSE
```

BOWIE FINE SANDY LOAM (40,02,C,a)

Location: Texas Agr. Exp. Sta. substation; Watershed No. 5: 6.2 mi. N of city limits of Tyler on Hwy. No. 69, thence 1 mi. E on oil-top road.
Vegetation and land use: Pasture, coastal bermudagrass
Topography: Moderately sloping
Drainage: Medium to rapid
Parent Material: Acid sandy loams and sandy clay loams, probably of the Claiborne group.
Described and sampled by: G. Land and G. A. Schumaker

Horizon	Description
Ap	0 to 6 inches. Very pale brown (10YR 8/3) fine sandy loam, pale brown (10YR 6/3) moist; compound structure of weak subangular blocky and medium granular; soft dry, very friable moist; many fibrous roots; few ferruginous ironstone pebbles 5 to 10 mm. in size; pH 6.0; clear boundary.
A2	6 to 10 inches. Very pale brown (10YR 8/4) fine sandy loam, very pale brown (10YR 7/4) moist; contains a few specks of yellow; weak subangular blocky structure; soft dry, very friable moist; contains a few ironstone pebbles 5 to 10 mm. in size and a few fibrous roots; pH 5.3; abrupt boundary.
B1	10 to 16 inches. Yellow (10YR 7/6) light sandy clay loam, brownish yellow (10YR 5/6) moist with common medium faint mottles of yellowish brown and specks of red; moderate medium subangular blocky structure; slightly hard dry, friable moist; contains a few fibrous roots; pH 5.0; clear boundary.
B21	16 to 36 inches. Brownish yellow (10YR 6/6) sandy clay loam, yellowish brown (10YR 5/6) moist, with many moderate and coarse faint and distinct mottles and splotches of yellowish brown (10YR 5/8), red (2.5YR 4/8), dark red (2.5YR 3/6), and yellow (10YR 7/8) moist colors; moderate medium subangular blocky structure; hard dry, friable moist; few medium and small pores; few worm casts; few fibrous roots; few small ironstone pebbles; pH 5.0; gradual boundary.
B22	36 to 50 inches. Yellow (10YR 7/6) light sandy clay loam, brownish yellow (10YR 6/6) moist with many medium and coarse faint and distinct mottles of yellowish brown, red and light gray; moderate medium subangular blocky structure; friable moist, hard dry; few medium pores; pH 5.0; gradual boundary.
C	50 to 60 inches plus. Light gray (10YR 7/1) sandy clay loam, light gray (10YR 6/1) moist, with mottles and streaks and large splotches of red and yellowish brown; contains pockets of sandy clay and streaks of sandy loam as well as sandy clay loam; pH 4.5.

Remarks: This soil has a concave 4 percent slow gradient.

BOWIE FINE SANDY LOAM (40,02,C,a)

```
        WEIGHT  PERCENT  AND  VOLUME  PERCENT  OF  WATER  RETAINED

IDENTIFICATION        T E N S I O N S  (BARS)
                                                                BD       TP      K
40   2   2   1     .1       .3       .6       3.       15.      G/CC     PCT    IN/HR

     DEPTH                                                          2
      0           22.29    14.37     7.29     3.48     2.33     1.73     34.72
                  38.56    24.86    12.61     6.02     4.03
                  FRAGMENT                      SIEVED  5.95ROCK PERCENT  1.66
                                                                    1
      10          22.22    21.67    17.94    14.95     7.79     1.58     40.38     .84
                  35.10    34.23    28.34    23.62    12.30     1.68     36.60     .67
                  FRAGMENT 21.63                SIEVED  8.95ROCK PERCENT 32.61
                                                                    1
      16          23.32    21.63    17.69    14.99     9.98     1.47     44.53     .84
                  34.28    31.79    26.00    22.03    14.67     1.61     39.25     .31
                  FRAGMENT 20.11                SIEVED 10.60ROCK PERCENT 28.52
                                                                    1
      35          24.75    23.26    16.66    14.46     9.43     1.48     44.15     .24
                  36.63    34.42    24.65    21.40    13.95     1.50     43.40     .24
                  FRAGMENT 21.65                SIEVED 10.77ROCK PERCENT 34.36
                                                                    1
      50          31.32    28.57    20.98    17.78    10.78     1.43     46.04     .20
                  44.78    40.85    30.00    25.42    15.41     1.67     36.98     .08
                  FRAGMENT 27.75                SIEVED 12.26ROCK PERCENT 47.96

        1=FIST
        2=CORE
        3=LOOSE
```

BOWIE FINE SANDY LOAM (40,02,C,b)

Location: 30' east of other Bowie profile (40,02,C,a) on Watershed No. 5.
Vegetation and land use: Cultivated (sorghum 1964)
Topography: Moderately sloping, 4% concave slope
Drainage: Medium rapid
Parent Material: Acid sandy loams and sandy clay loams, probably of the Claiborne group.
Described and sampled by: G. Lane and G. A. Schumaker

Horizon	Description
Ap	0 to 7 inches. Very pale brown (10YR 7/3) sandy loam, pale brown (10YR 6/3) moist; weak medium, granular structure; soft dry, very friable moist; few fibrous roots; few chert and ferruginous sandstone pebbles 5-10 mm. in diameter; pH 6.0; clear boundary.
A2	7 to 13 inches. Very pale brown (10YR 7/4) fine sandy loam, light yellowish brown (10YR 6/4) moist; mass appears structureless; soft dry, very friable moist, few small yellow and brownish yellow splotches; few ferruginous sandstone pebbles, 5-10 mm. in diameter; few small and medium pores; pH 5.5; abrupt boundary.
B1	13 to 20 inches. Brownish yellow (10YR 6/6) light sandy clay loam, yellowish brown (10YR 5/6) moist; weak medium subangular blocky structure; slightly hard dry, very friable, moist; common fine and medium faint and distinct mottles of yellow and red; many small and medium pores; few wormcasts; few ferruginous sandstone pebbles; pH 5.0; clear boundary.
B21	20 to 38 inches. Brownish yellow (10YR 6/6) sandy clay loam,yellowish brown (10YR 5/6) moist; moderate medium subangular blocky structure; hard dry, friable moist; common fine and medium faint and distinct mottles of brownish yellow and red; few medium pores; few wormcasts; pH 5.0; gradual boundary.
B22	38 to 54 inches. Mottled red (2.5YR 4/8), dark red (2.5YR 3/6), brownish yellow (10YR 6/6) yellowish brown (10YR 5/6) sandy clay loam, all moist colors; weak subangular blocky structure; hard dry, friable moist; pH 4.5; gradual boundary.
C	54 to 62 inches plus. Splotched and mottled light gray, red, yellow, yellowish brown, light sandy clay loam; massive; friable moist, very hard dry; pH 4.5.

BOWIE FINE SANDY LOAM (40,02,C,b)

WEIGHT PERCENT AND VOLUME PERCENT OF WATER RETAINED

IDENTIFICATION 40 2 2 2	TENSIONS (BARS) .1	.3	.6	3.	15.	BD G/CC	TP PCT	K IN/HR
DEPTH						3		
0	23.72	13.24	4.38	2.61	2.00	1.46	44.91	
	34.63	19.33	6.39	3.81	2.92			
	FRAGMENT			SIEVED	2.75ROCK	PERCENT	2.18	
						3		
7	19.01	13.02	4.59	2.92	.94	1.55	41.51	
	29.46	20.18	7.11	4.52	1.45			
	FRAGMENT			SIEVED	1.68ROCK	PERCENT	3.01	
						1		
13	23.36	23.27	16.49	14.03	10.18	1.50	43.40	.93
	35.04	34.90	24.73	21.04	15.27	1.59	40.00	.83
	FRAGMENT	21.74		SIEVED	10.67ROCK	PERCENT	9.60	
						1		
20	23.49	22.05	16.27	13.66	11.20	1.55	41.51	.08
	36.40	34.17	25.21	21.17	17.36	1.61	39.25	.11
	FRAGMENT	21.47		SIEVED	9.79ROCK	PERCENT	39.02	
						1		
38	24.13	21.24	14.39	10.37	8.84	1.57	40.75	.55
	37.88	33.34	22.59	16.28	13.87	1.63	38.49	.24
	FRAGMENT	21.25		SIEVED	8.67ROCK	PERCENT	3.56	
						1		
54	28.84	26.31	14.74	10.49	8.05	1.35	49.06	.30
	38.93	35.51	19.89	14.16	10.86	1.44	45.66	.20
	FRAGMENT	24.38		SIEVED	7.76ROCK	PERCENT	.15	

1=FIST
2=CORE
3=LOOSE

KIRVIN FINE SANDY LOAM (40,03,C,a)

Location: Texas Agr. Exp. Sta., Watershed GS-4
Vegetation and land use: Pasture
Topography: Slope is complex convex, north with several crossable V gullies 2-4' deep and 10-15' across at top. Lower slope has couple uncrossable gullies.
Drainage: Medium
Parent Material: Acid sandy clays, clays and sandy clay loams, probably of the Claiborne group.
Described and sampled by: J. Thomas, G. Lane, G. A. Schumaker

Horizon	Description
Ap	0 to 3 inches. Brown (10YR 5/3) fine sandy loam, dark brown (10YR 4/3) moist; weak granular structure; slightly hard dry, very friable moist; non-sticky wet; contains many fibrous roots and a few angular ferruginous sandstone fragments 1 to 3 in. across; pH 6.0; clear smooth boundary.
A2	3 to 10 inches. Brown (7.5YR 5/4) fine sandy loam, brown (7.5YR 4/4) moist; very weak granular structure; slightly hard dry, very friable moist, non-sticky wet; contains fewer roots than horizon above; contains a few fragments 5 to 10 mm. in diameter; pH 6.5; abrupt smooth boundary.
B21	10 to 19 inches. Yellowish red (5YR 5/8) sandy clay, yellowish red (5YR 4/8) moist; strong fine subangular blocky structure with shiny surfaces on ped faces; contains a few fine faint mottles of red; contains a few ferruginous sandstone fragments and a few specks of black; pH 6.5; gradual smooth boundary.
B22	19 to 37 inches. Mottled red (10R 4/8), yellowish red (5YR 4/8), yellowish brown (10YR 5/6) and brownish yellow (10YR 4/6), all moist, sandy clay; moderate medium blocky breaking into moderate fine and very fine blocky structure; very hard dry, firm moist, slightly sticky wet; contains a few fibrous roots and fragments of ferruginous sandstone; pH 6.5; gradual smooth boundary.
C1	37 to 51 inches. Reticulately mottled dark red, yellowish brown, and gray (all moist) sandy clay loam; the yellowish brown diminishes with depth; moderate coarse blocky structure; hard dry, friable moist, slightly sticky wet; contains fewer roots; pH 5.0; gradual smooth boundary.
C2	51 to 62 inches plus. Stratified red and gray light sandy clay loam; massive; very hard dry, friable moist, non-sticky wet; pH 5.0.

Remarks: The area was cultivated for 75-100 years; now in little bluestem and bermudagrass.

KIRVIN FINE SANDY LOAM (40.03,C,a)

WEIGHT PERCENT AND VOLUME PERCENT OF WATER RETAINED

IDENTIFICATION	TENSIONS (BARS)							
40 3 2 1	.1	.3	.6	3.	15.	BD G/CC	TP PCT	K IN/HR
DEPTH						1		
0	25.39	21.24	11.43	7.59	6.83	1.55	41.51	5.18
	39.35	32.92	17.71	11.76	10.58	1.61	39.25	4.02
	FRAGMENT	21.87		SIEVED	8.99ROCK	PERCENT	17.89	
						3		
3	16.77	16.36	7.84	8.65	3.64	1.57	40.75	3.49
	26.32	25.68	12.30	13.58	5.71			2.63
	FRAGMENT			SIEVED	3.47ROCK	PERCENT	25.66	
						1		
10	25.82	24.85	22.70	19.99	15.50	1.48	44.15	.74
	38.21	36.77	33.59	29.58	22.94	1.60	39.62	1.50
	FRAGMENT	23.28		SIEVED	17.48ROCK	PERCENT	25.90	
						1		
19	25.85	22.86	22.55	20.72	15.37	1.46	44.91	.37
	37.74	33.37	32.92	30.25	22.44	1.53	42.26	.51
	FRAGMENT	21.84		SIEVED	16.27ROCK	PERCENT	12.17	
						1		
37	21.76	18.04	17.92	16.66	13.18	1.40	47.17	.26
	30.46	25.25	25.08	23.32	18.45			.07
	FRAGMENT	17.19		SIEVED	11.62ROCK	PERCENT	.06	
						1		
51	20.33	18.69	16.90	17.70	12.68	1.67	36.98	.10
	33.95	31.21	28.22	29.55	21.17	1.77	33.21	.05
	FRAGMENT	17.54		SIEVED	11.26ROCK	PERCENT	1.24	

1=FIST
2=CORE
3=LOOSE

KIRVIN FINE SANDY LOAM (40,03,C,b)

Location: Texas Agr. Exp. Sta., Watershed GS-4, 15' N of pit 40,03,C,a.
Vegetation and land use: Pasture
Topography: Sloping
Drainage: Medium
Parent Material: Acid sandy clay, clays and sandy clay loams, probably of the Claiborne group.
Described and sampled by: J. Thomas, G. Lane, G. A. Schumaker

Horizon	Description
Ap	0 to 6 inches. Light yellowish brown (10YR 6/4) fine sandy loam, yellowish brown (10YR 5/4) moist; very weak granular; slightly hard dry, very friable moist, non-sticky wet; numerous ferruginous pebbles ranging in size from 0.1 to 3 inches in diameter across the long axis; pH 6.5; abrupt boundary.
A2	6 to 9 inches. Light brown (10YR 6/4) fine sandy loam, strong brown (7.5YR 5/6) moist; same structure and consistence as in Ap; few shot-size ferruginous sandstone pebbles; pH 5.7; clear boundary.
B2	9 to 21 inches. Red (2.5YR 4/6) light clay, moist; compound medium and fine subangular blocky and fine blocky; very hard dry, firm moist, plastic wet; few fine pores; pH 5.0; gradual boundary.
B3	21 to 30 inches. Stratified red (2.5YR 4/8) and light gray (10YR 7/1) with fewer very thin streaks of yellowish brown (10YR 5/8), moist colors; silty clay loam; platy structure breaking into moderate medium blocky; very hard dry, friable moist; pH 5.0; gradual boundary.
C1	30 to 54 inches. Stratified red (2.5YR 4/8) and gray (10YR 6/1); surfaces of some strata dark yellowish brown; moist colors; silty clay loam; platy structure; same consistence as horizon above; pH 4.5.
C2	54 to 70 inches plus. Light gray (10YR 7/1), moist, silt; occasionally streaked with brownish yellow containing a very few streaks of black and occasional minute reddish specks; massive unweathered soil material; pH 4.5.

Remarks: The B21 is more clayey than the modal for Kirvin fine sandy loam. Also the entire profile seems more silty than common.

This watershed contains areas of Boswell fine sandy loam, Bowie fine sandy loam, and intergrades of the three soils.

TYLER, TEXAS

KIRVIN FINE SANDY LOAM (40,03,C,b)

```
      WEIGHT  PERCENT  AND  VOLUME  PERCENT  OF  WATER  RETAINED

IDENTIFICATION        T E N S I O N S  (BARS)
                                                                 BD        TP        K
40   3   2   2     .1         .3         .6         3.         15.      G/CC      PCT     IN/HR

     DEPTH                                                            3
       0           20.81      8.57       7.14      6.46      2.87      1.54      41.89     2.49
                   32.04     13.19      10.99      9.94      4.41                          2.20
                   FRAGMENT                         SIEVED   2.86ROCK  PERCENT  16.81
                                                                      3
       6           20.31      9.02       8.36      5.97      4.72      1.57      40.75
                   31.88     14.16      13.12      9.37      7.41
                   FRAGMENT                         SIEVED   3.60ROCK  PERCENT  17.66
                                                                      1
       9           29.60     27.39      26.49     24.71     19.73      1.43      46.04      .32
                   42.32     39.16      37.88     35.33     28.21      1.61      39.25      .53
                   FRAGMENT  25.86                  SIEVED  16.59ROCK  PERCENT  40.26
                                                                      1
      21           33.04     28.57      25.13     20.22     17.69      1.40      47.17     1.00
                   46.25     39.99      35.18     28.30     24.76      1.61      39.25      .91
                   FRAGMENT  27.94                  SIEVED  18.40ROCK  PERCENT    .74
                                                                      1
      30           30.12     27.02      25.73     22.32     18.57      1.48      44.15      .58
                   44.57     39.98      38.08     33.03     27.48      1.69      36.23      .12
                   FRAGMENT  25.13                  SIEVED  27.15ROCK  PERCENT  24.97

      1=FIST
      2=CORE
      3=LOOSE
```

BUB GRAVELLY SANDY LOAM (40,04,C,a)[1]

Location: Texas Agr. Exp. Sta., Watershed GS-3, 75' S of cemetery
Vegetation and land use: Pasture
Topography: 5 percent concave slope
Drainage: Medium to rapid
Parent Material: Glauconitic sandstone and sandy loams
Described and sampled by: J. Thomas, G. Lane, G. A. Schumaker

Horizon	Description
A1	0" to 6 inches. Dark brown (7.5YR 2/2) moist, fine sandy loam; moderate fine granular; contains 27% by volume of ferruginous sandstone gravel, 1/8 to 2 inches in diameter; many fibrous roots; few woody roots; pH 8.0.
A12	6 to 22 inches. Dark red (2.5YR 3/6) moist, heavy fine sandy loam or light sandy clay loam; moderate medium granular structure; 37% by volume of ferruginous sandstone gravel up to 1 inch in diameter; few woody roots and fibrous roots; pH 7.5.
C and R	22 to 40 inches plus. Bed of glauconitic sandstone containing thin strata and lenses of red (2.5YR 4/6), moist, clay with few fine distinct mottles of strong brown; pH 6.5; roots penetrate the horizon readily.

Remarks: Site is approximately 10-12 feet vertically and 100 feet horizontally from crest to the north.

The profile is thicker than is modal for the Bub series and does not contain a continuous rock substrata.

[1] Inclusion within Nacogdoches gravelly fine sandy loam.

BUB GRAVELLY SANDY LOAM (40,04,C,a)

```
       WEIGHT  PERCENT  AND  VOLUME  PERCENT  OF  WATER  RETAINED

IDENTIFICATION        T E N S I O N S  (BARS)
                                                              BD        TP
40   4   2   1     .1        .3        .6       3.       15.       G/CC      PCT

     DEPTH                                                            3
      0            26.00     18.44     16.89    13.67    10.57      1.31      50.57
                   34.06     24.15     22.12    17.90    13.84
                   FRAGMENT                       SIEVED  8.79ROCK PERCENT 31.46
                                                                      3
      6            12.80     10.28      9.89     9.17     5.74      1.78      32.83
                   22.78     18.29     17.60    16.32    10.21
                   FRAGMENT                       SIEVED  5.45ROCK PERCENT 54.67
                                                                      3
     22            21.46     18.78     17.30    14.71    13.47*     1.34      49.43
                   28.75     25.16     23.18    19.71    18.04
                   FRAGMENT                       SIEVED  4.34ROCK PERCENT 34.78
                                                       *RERUN AS 11.03

      1=FIST
      2=CORE
      3=LOOSE
```

BUB GRAVELLY FINE SANDY LOAM (deep variant) (40,04,C,b)

Location: Texas Agr. Exp. Sta., Watershed GS-3, 100' S and 30' E of SE corner of cemetery
Vegetation and land use: Pasture
Topography: Sloping
Drainage: Medium to rapid
Parent Material: Glauconitic sandstones and sandy loam
Described and sampled by: J. Thomas, G. Lane, G. A. Schumaker

Horizon	Description
Ap	0 to 4 inches. Dark reddish brown (5YR 3/3) moist, fine sandy loam containing 30% by volume of ferruginous sandstone pebbles and fragments generally 1/4 to 1 inch in diameter but ranging up to 3 inches in diameter; medium very fine granular structure; hard dry, very friable moist, non-sticky wet; pH 8.0; clear smooth boundary.
A12	4 to 27 inches. Dark red (2.5YR 3/6) moist, fine sandy loam, containing 56% gravel size glauconitic and ferruginous sandstone pebbles and 10-15% of fragments 3 to 4 inches in diameter; weak granular structure; consistence same as above; pH 7.0; gradual wavy boundary.
C and R	27 to 40 inches. Layers of greatly fractured glauconitic sandstone, 1-3" thick, and lenses of red (2.5YR 4/6), moist, sandy clay and sandy clay loams, soil material also occurs in cracks between rocks; roots readily penetrate the layer; very weak if any structure in soil layers; pH 5.5; clear wavy boundary.
C	40 to 56 inches plus. Bed of glauconitic sandy clay dark brown (7.5YR 4/4) moist, containing strata of sandy clay which ranges from gray to red and yellowish brown; contains discontinuous lenses of sandstone ranging from weakly cemented to indurated; pH 5.0.

BUB GRAVELLY FINE SANDY LOAM (deep variant) (40,04,C,b)

```
       WEIGHT  PERCENT  AND  VOLUME  PERCENT  OF  WATER  RETAINED

IDENTIFICATION         T E N S I O N S  (BARS)
                                                                BD        TP
40   4    2    2     .1         .3         .6         3.        15.       G/CC      PCT

     DEPTH                                                                   3
       0            16.24      11.30      10.28      9.01      5.55      1.58      40.38
                    25.65      17.85      16.24     14.23      8.76
                    FRAGMENT                          SIEVED   5.11ROCK PERCENT 37.48
                                                                             3
       4            11.02       8.63       7.98      6.66      4.96      1.72      35.09
                    18.95      14.84      13.72     11.45      8.53
                    FRAGMENT                          SIEVED   3.84ROCK PERCENT 66.31
                                                                             3
      27            21.42      20.68      19.73     18.62     13.80      1.25      52.83
                    26.77      25.85      24.66     23.27     17.25
                    FRAGMENT                          SIEVED  13.62ROCK PERCENT 18.60
                                                                             3
      40            25.37      22.15      20.38     19.86     14.39      1.14      56.98
                    28.92      25.25      23.23     22.64     16.40
                    FRAGMENT                          SIEVED  12.62ROCK PERCENT 32.46

       1=FIST
       2=CORE
       3=LOOSE
```

VEGA, TEXAS

MANSKER CLAY LOAM (41,01,P,a)

Location: Experimental watershed No. II; 750' W and 500' S of weir, 150' S of draw, Sec. 14, League 300 and 322.
Vegetation and land use: Shortgrass sod, blue grama, and sideoats grama
Topography: Moderately sloping uplands (grad. 3%)
Drainage: Well drained; moderately permeable
Parent Material: Loamy calcareous loess-like sediments of the High Plains mantle
Described and sampled by: Luther Geiger and G. A. Schumaker

Horizon	Description
A1	0 to 9 inches. Brown (7.5YR 5/3) clay loam, dark brown (7.5YR 4/3) moist; weak subangular blocky and granular structure; slightly sticky wet, very friable moist, soft dry; moderately alkaline, strongly calcareous; a few hard $CaCO_3$ concretions; many worm casts; clear lower boundary.
AC	9 to 16 inches. Light brown (7.5YR 6/4) clay loam, brown (7.5YR 5/4) moist; weak coarse prismatic structure breaking to very fine granular; slightly sticky wet, very friable moist; strongly calcareous; moderately alkaline; 3-5 percent of volume is hard $CaCO_3$ concretions mostly between 3-5 mm in diameter but ranging to 10mm; many roots and pores; irregular lower boundary with common tongues of this horizon extending 2 to 4 inches into Cca.
Cca	16 to 38 inches. Yellowish red (5YR 5/6) clay loam, yellowish red (5YR 4/6) moist; slightly sticky wet, friable moist, hard dry; moderately alkaline; 25-40 percent of volume is white soft to semi-hard caliche concretions and masses ranging from a few mm up to about 40mm in size resulting in a prominent distinct mottling throughout the horizon; a few large irregular masses of $CaCO_3$ in lower part between 4 and 6 in. in diameter; tongues of AC horizon extend into this horizon in a few places; roots and worm casts common in upper part, few in lower; apparently the least permeable horizon; irregular lower boundary.
Cca2	38 to 45 inches plus. Yellowish red (5YR 5/6) heavy sandy clay loam, yellowish red (5YR 4/6) moist; weak to moderate medium blocky; slightly sticky wet, firm moist, very hard dry; moderately alkaline; 1 to 3 percent of volume is white $CaCO_3$ soft masses; an occasional root; many very fine old root channels .2 to .5mm.

VEGA, TEXAS

MANSKER CLAY LOAM (41,01,P,a)

```
       WEIGHT  PERCENT  AND  VOLUME  PERCENT  OF  WATER  RETAINED

IDENTIFICATION        T E N S I O N S  (BARS)
                                                                BD       TP      K
41   1   1   1      .1       .3       .6       3.       15.     G/CC     PCT    IN/HR

     DEPTH                                                         1
       0           23.62    15.27    14.18    11.59     8.58    1.46    44.91    1.12
                   34.48    22.29    20.70    16.92    12.52    1.55    41.51    1.88
                   FRAGMENT 16.95             SIEVED    8.64ROCK PERCENT 15.86
                                                                   1
       9           20.34    15.20    13.09    11.25     8.69    1.34    49.43    4.80
                   27.25    20.36    17.54    15.07    11.64    1.40    47.17    3.41
                   FRAGMENT 16.47             SIEVED    8.35ROCK PERCENT  4.06
                                                                   1
      16           22.17    16.33    14.34    11.04     8.89    1.61    39.25    5.12
                   35.69    26.29    23.08    17.77    14.31    1.72    35.09    3.70
                   FRAGMENT 16.46             SIEVED   15.33ROCK PERCENT 15.49
                                                     ( 9.63)

       1=FIST
       2=CORE
       3=LOOSE
```

MANSKER CLAY LOAM (41,01,P,b)

Location: Experimental watershed No. I; 1040' S and 500' W of weir, 200' W of stock-water tanks, Sec. 10, League 322.
Vegetation and land use: Mixed short and midgrass sod; blue grama and sideoats grama
Topography: Sloping upland along draw (grad. 5%)
Drainage: Well drained; moderately slowly permeable
Parent Material: Loamy calcareous loess-like earths of High Plains
Described and sampled by: Luther Geiger and G. A. Schumaker

Horizon	Description
A1	0 to 6 inches. Brown (5YR 5/3) clay loam, brown (5YR 4/3) moist; weak subangular blocky breaking to very fine granular structure; slightly sticky wet, very friable moist, soft when dry; common worm casts; a few hard $CaCO_3$ concretions (5-10mm); strongly calcareous; moderately alkaline; clear lower boundary.
AC	6 to 15 inches. Light brown (5YR 6/4) clay loam, brown (5YR 5/4) moist; weak coarse prismatic breaking to weak subangular blocky and very fine granular structure; very friable moist, soft and crumbly when dry; common caliche concretions and soft masses (3-5% of volume); earthen material is mostly worm casts; strongly calcareous; clear lower boundary.
Cca1	15 to 30 inches. Light reddish brown (5YR 6/4) heavy clay loam; reddish brown (5YR 5/4) moist; weak blocky to medium and coarse moderate subangular blocky structure; very firm moist, very hard dry; strongly calcareous and moderately alkaline; probably the least permeable horizon (moderately permeable); 10-20 percent by volume of soft to semi-hard white irregular-shaped caliche masses and concretions forming prominent distinct white splotches or mottles throughout horizon; roots and worm casts common in upper part, few in lower; clear irregular lower boundary.
Cca2	30 to 36 inches plus. Yellowish red (5YR 5/6) clay loam, yellowish red (5YR 4/6) moist; weak to moderate medium and coarse subangular blocky structure; slightly sticky, firm moist, very hard dry; breaking into fist-sized irregular-shaped chunks or clods; strongly calcareous; mottled with 3-5% by volume of white masses of $CaCO_3$; many very fine old root channels; a few roots; moderately alkaline.

VEGA, TEXAS

MANSKER CLAY LOAM (41,01,P,b)

```
       WEIGHT  PERCENT  AND  VOLUME  PERCENT  OF  WATER  RETAINED

IDENTIFICATION        T E N S I O N S  (BARS)
                                                                    BD        TP       K
41   1   1   2     .1        .3        .6        3.        15.       G/CC      PCT     IN/HR

     DEPTH                                                           1
      0            24.37     16.50     14.17     11.65      8.69     1.40     47.17      .67
                   34.11     23.10     19.83     16.31     12.16     1.50     43.40     2.30
                   FRAGMENT  16.78                SIEVED    8.76ROCK PERCENT 11.38
                                                                     1
      6            19.89     17.54     15.44     13.18      9.96     1.43     46.04     1.19
                   28.44     25.08     22.07     18.84     14.24     1.54     41.89     3.84
                   FRAGMENT  18.47                SIEVED    9.39ROCK PERCENT  4.34
                                                                     1
     15            22.13     18.15     13.87     12.56      9.60     1.50     43.40      .93
                   33.19     27.22     20.80     18.84     14.40     1.64     38.11     2.37
                   FRAGMENT  18.67                SIEVED   10.32ROCK PERCENT 11.96

       1=FIST
       2=CORE
       3=LOOSE
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POTTER GRAVELLY LOAM (41,02,P, a and b)

Location: Watershed No. I: Pit a, 1750' S and 600' W of NE cor. Sec. 10, League 322, 600' S and 75' W of weir; Pit b, 1500' S and 300'W of NE cor. and 320' S and 100' E of weir.
Vegetation and land use: Sparse stand of sideoats grama, some hairy grama.
Topography: Steep upper sideslope of drainageway, 15-20% slope
Drainage: Rapid runoff; moderately permeable
Parent Material: Loamy caliche earths of High Plains mantle
Described and sampled by: Luther Geiger and G. A. Schumaker

Horizon	Description
Pit a	
A1	0 to 8 inches. Pale brown (10YR 6/3) gravelly loam, brown (10YR 4/3) moist; 20 to 30 percent hard caliche gravel by volume intermixed with loamy granular earths consisting mostly of worm casts; friable when moist; moderately alkaline; caliche pebbles are dominantly between 5 and 10mm in diameter; most roots concentrated in this horizon; clear boundary.
Cca	8 to 20 inches. Pinkish white (7.5YR 8.2 dry) weakly cemented caliche intermixed with light brown strongly calcareous loamy earths; very hard when dry; lime segregations comprise an estimated 60 to 80 percent of horizon, ranging from soft irregular masses to hard somewhat rounded concretions that are up to 1.5 inches in diameter; a few worm casts in upper part; moderately to moderately slowly permeable.
Pit b	
A1	0 to 8 inches. Light brown (7.5YR 6/3) gravelly loam, brown (7.5YR 5/3) moist; weak granular structure; very friable moist, slightly hard dry; moderately alkaline; estimated 15 to 25 percent caliche gravel by volume; pebbles dominantly between 5 and 10mm in diameter; many worm casts; clear lower boundary.
Cca	8 to 18 inches plus. White (5YR 8/2) caliche pebbles 5-10mm in diameter making up approximately 80 percent by volume of this horizon; interspaces filled by light reddish brown calcareous loam; pebbles loose in soil with little or no cementation; moderately alkaline; moderately permeable.

POTTER GRAVELLY LOAM (41,02,P, a and b)

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      WEIGHT  PERCENT  AND  VOLUME  PERCENT  OF  WATER  RETAINED

IDENTIFICATION        T E N S I O N S  (BARS)
                                                                  BD        TP      K
41    2    1    1     .1        .3        .6        3.        15.       G/CC      PCT    IN/HR

     DEPTH                                                                  1
      0              18.61     16.08     13.72     11.66     6.94      1.43      46.04    2.91
                     26.61     22.99     19.61     16.67     9.92      1.56      41.13    3.29
                     FRAGMENT  16.05                 SIEVED  9.24ROCK  PERCENT 36.92
                                                                            3
      8              17.21     12.10     10.25      9.74     6.14      1.38      47.92
                     23.74     16.69     14.14     13.44     8.47
                     FRAGMENT                        SIEVED  7.15ROCK  PERCENT 77.47


IDENTIFICATION        T E N S I O N S  (BARS)
                                                                  BD        TP
41    2    1    2     .1        .3        .6        3.        15.       G/CC      PCT

     DEPTH                                                                  3
      0              24.73     19.77     14.81     12.28      9.01     1.23      53.58
                     30.41     24.31     18.21     15.10     11.08
                     FRAGMENT                        SIEVED 11.05ROCK  PERCENT 49.78
                                                                            3
      8               9.83      8.94      8.58      7.66     7.09      1.51      43.02
                     14.84     13.49     12.95     11.56     10.70
                     FRAGMENT                        SIEVED  9.45ROCK  PERCENT 79.75

      1=FIST
      2=CORE
      3=LOOSE
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VEGA, TEXAS

PULLMAN SILTY CLAY LOAM (41,03,P,a)

Location: Experimental watershed No. II; SW portion, 800' W and 50'S of windmill, 2200' W and 900' N of SE cor. Sec. 14, League 300 and 322.
Vegetation and land use: Bluegrama sod
Topography: Gently sloping upland plain (1.5% gradient)
Drainage: Well drained; slowly permeable
Parent Material: Loamy to clayey loess-like sediments of the High Plains mantle
Described and sampled by: Luther Geiger and G. A. Schumaker

Horizon	Description
A1	0 to 7 inches. Brown (7.5YR 4/2) silty clay loam, dark brown (7.5YR 3/2) moist; weak to moderate fine and very fine subangular blocky structure; friable when moist, slightly sticky when wet; neutral in reaction; noncalcareous; many fine fibrous roots that thoroughly permeate this horizon, but which decrease sharply at its lower boundary; clear transition to next horizon.
B21	7 to 14 inches. Brown (7.5YR 4/2) light clay, dark brown (7.5YR 3/2) moist; moderate fine and very fine irregular or sharply angular blocky structure, these aggregates loosely arranged into larger weak medium and coarse blocks; sticky wet, very firm moist; noncalcareous; about neutral; roots throughout soil mass; peds have shiny exteriors when moist; a few very fine pores (less than .5mm in diameter; clear lower boundary.
B22	14 to 22 inches. Dark brown (7.5YR 4/2) clay, dark brown (7.5YR 3/2) moist; moderate medium blocky structure, blocks tending to platy structure having slightly longer horizontal than vertical axes; sticky wet, very firm moist, extremely hard when dry; noncalcareous; neutral; most of larger roots follow surfaces of peds with some of finer ones penetrating interiors of blocks; blocks have shiny surfaces when moist; this horizon estimated to be the least permeable layer in soil (slowly to very slowly permeable); clear lower boundary.
B2b1	22 to 38 inches. Brown (7.5YR 5/4) heavy clay loam, brown (7.5YR 4/4) moist; moderate medium to strong blocky structure; blocks arranged in long vertical columns with little or no overlap between peds; very firm moist, very hard when dry; strongly calcareous and moderately alkaline; thin coatings of $CaCO_3$ on surfaces of peds; common roots; common very fine pores .25-.5mm in diameter; gradual lower boundary.
B2b2	38 to 52 inches. Reddish brown (5YR 5/4) clay loam, reddish brown (5YR 4/4) moist; moderate medium and coarse blocky structure; slightly sticky wet, very hard when dry; soil mass noncalcareous, thin white patches of $CaCO_3$ on ped surfaces; a few worm casts; common root channels 1-2mm in diameter; abrupt wavy lower boundary.
Ccab	52 to 60 inches plus. Light reddish brown (5YR 6/4, dry) calcareous clay loam earths intermixed in about equal proportions with white soft masses of $CaCO_3$; slightly sticky when wet, hard when dry, friable moist; a few roots; moderately to moderately slowly permeable.

VEGA, TEXAS

PULLMAN SILTY CLAY LOAM (41,03,P,a)

```
      WEIGHT  PERCENT  AND  VOLUME  PERCENT  OF  WATER  RETAINED

IDENTIFICATION        T E N S I O N S  (BARS)
                                                                BD       TP       K
41   3   1   1      .1        .3        .6        3.        15.       G/CC     PCT     IN/HR

     DEPTH                                                            1
      0             30.00     22.14     21.01     14.66     12.40     1.43     46.04     .61
                    42.90     31.66     30.04     20.96     17.73     1.56     41.13    1.11
                    FRAGMENT  21.05                SIEVED 11.62ROCK PERCENT    1.93
                                                                      1
      7             30.39     25.67     23.14     19.99     15.91     1.43     46.04    1.40
                    43.45     36.70     33.09     28.58     22.75     1.65     37.74    1.40
                    FRAGMENT  24.25                SIEVED 17.16ROCK PERCENT     .65
                                                                      1
     14             32.53     26.59     23.43     22.40     18.43     1.54     41.89     .50
                    50.09     40.94     36.08     34.49     28.38     1.63     38.49      0
                    FRAGMENT  25.26                SIEVED 19.14ROCK PERCENT    8.21
                                                                      1
     22             26.41     19.71     17.79     15.21     12.73     1.52     42.64     .44
                    40.14     29.95     27.04     23.11     19.34     1.68     36.60     .62
                    FRAGMENT  17.17                SIEVED 13.54ROCK PERCENT    4.56
                                                                      1
     38             26.94     21.27     19.68     14.65     12.68     1.45     45.28     .86
                    39.06     30.84     28.53     21.24     18.38     1.58     40.38     .43
                    FRAGMENT  19.61                SIEVED 12.83ROCK PERCENT    7.97
                                                                      1
     52             28.17     23.65     21.42     14.06     10.56     1.29     51.32     .60
                    36.33     30.50     27.63     18.13     13.62     1.44     45.66    1.51
                    FRAGMENT  23.17                SIEVED 11.81ROCK PERCENT   15.55

      1=FIST
      2=CORE
      3=LOOSE
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PULLMAN SILTY CLAY LOAM (41,03,P,b)

Location: Watershed No. II, SW portion; 2300' W and 900' N of SE cor. sec. 14, League 300 and 322.
Vegetation and land use: Blue grama sod
Topography: Gently sloping upland plain (2% gradient)
Drainage: Moderately well drained; slowly permeable
Parent Material: Loamy and clayey loess-like sediments of High Plains mantle
Described and sampled by: Luther Geiger and G. A. Schumaker

Horizon	Description
A1	0 to 7 inches. Brown (7.5YR 4/2) silty clay loam, dark brown (7.5YR 3/2) moist; moderate fine to very fine subangular blocky and granular structure; friable when moist, slightly sticky wet; neutral and noncalcareous; many fine fibrous grass roots; 1" accumulation of wind deposited silt loam on surface; clear lower boundary.
B21	7 to 15 inches. Brown (7.5YR 4/2) clay, dark brown (7.5YR 3/2) moist; moderate medium and coarse blocky structure; very firm when moist, extremely hard when dry; neutral; common roots; blocks dense and nonporous except for very fine root channels; shiny surfaces on exteriors of blocks when moist; clear lower boundary.

VEGA, TEXAS

PULLMAN SILTY CLAY LOAM (41,03,P,b)

```
      WEIGHT  PERCENT  AND  VOLUME  PERCENT  OF  WATER  RETAINED

IDENTIFICATION        T E N S I O N S  (BARS)
                                                                    BD        TP         K
41   3   1   2     .1        .3        .6        3.        15.      G/CC      PCT      IN/HR

     DEPTH                                                              1
       0          28.16     21.47     20.56     17.60     12.05     1.42     46.42      1.33
                  39.98     30.48     29.19     24.99     17.11     1.51     43.02      1.21
                  FRAGMENT  19.86                SIEVED  11.16ROCK  PERCENT   5.28
                                                                        1
       7          32.85     26.08     24.56     22.68     18.28     1.41     46.79       0
                  46.31     36.77     34.62     31.97     25.77     1.73     34.72       .11
                  FRAGMENT  28.89                SIEVED  18.10ROCK  PERCENT   1.01

      1=FIST
      2=CORE
      3=LOOSE
```

PULLMAN SILTY CLAY LOAM (41,03,C,a)

Location: Watershed No. I; 2770' S and 2550' W from NE cor. Sec. 10, League 322, 150' ENE from SW cor. of watershed.
Vegetation and land use: Fallow
Topography: Nearly level upland plain (.3% gradient)
Drainage: Moderately well drained; slow to very slow permeability
Parent Material: Loamy to clayey loess-like sediments of the High Plains mantle
Described and sampled by: Luther Geiger and G. A. Schumaker

Horizon	Description
Ap	0 to 5 inches. Dark brown (10YR 4/3) silty clay loam, dark brown (10YR 3/3) moist; weak granular and cloddy when dry; friable when moist, slightly sticky when wet; about neutral; clear lower boundary.
B21	5 to 12 inches. Dark brown (7.5YR 4/2) clay, dark brown (7.5YR 3/2) moist; moderate fine and very fine irregular blocky, peds having sharp angles (wedge-shaped); sticky wet, firm moist, very hard when dry; neutral; peds dense with a few very fine pores mostly less than .2mm (root channels); an occasional worm cast; shiny pressure faces on blocks when moist; clear lower boundary.
B22	12 to 20 inches. Dark brown (7.5YR 4/2) clay, dark brown (7.5YR 3/2) moist; moderate to strong medium blocky, tending to brick-like shapes in lower part having longer horizontal than vertical axes; sticky wet, very firm moist, extremely hard dry; neutral; shiny faces on peds; least permeable layer, slowly to very slowly permeable; roots tend to follow planes of weakness, with some penetrating into peds; clear lower boundary.
B2b1	20 to 30 inches. Reddish brown (5YR 5/4) heavy clay loam, reddish brown (5YR 4/4) moist; moderate medium blocky structure; slightly sticky wet, very hard dry; strongly calcareous; moderately alkaline; a few pores .5-1mm in diameter; patchy thin black coatings on surfaces of blocks; common threads and veins of $CaCO_3$; gradual lower boundary.
B2b2	30 to 40 inches plus. Yellowish red (5YR 5/6) heavy sandy clay loam, yellowish red (5YR 4/6) moist; moderate medium and coarse blocky structure; slightly sticky wet, firm moist; very hard dry; common very fine vertically oriented pores (.2-.3mm across); soil mass noncalcareous; ped surfaces calcareous with thin patchy coatings of $CaCO_3$; a few round white crystalline patches (3-5mm across) on ped surfaces, estimated to be $CaSO_4$; a few very fine roots.

VEGA, TEXAS

PULLMAN SILTY CLAY LOAM (41,03,C,a)

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      WEIGHT  PERCENT  AND  VOLUME  PERCENT  OF  WATER  RETAINED

IDENTIFICATION        T E N S I O N S  (BARS)
                                                              BD        TP       K
41   3   2   1     .1       .3       .6       3.       15.     G/CC      PCT    IN/HR

     DEPTH                                                       3
      0           29.03    21.19    19.10    17.16    13.44    1.19     55.09
                  34.54    25.21    22.72    20.42    15.99
                  FRAGMENT                     SIEVED 11.89ROCK PERCENT  3.55
                                                                 1
      5           34.64    29.26    26.58    21.53    20.20    1.33     49.81     .72
                  46.07    38.91    35.35    28.63    26.86    1.67     36.98     .80
                  FRAGMENT 29.86               SIEVED 18.49ROCK PERCENT
                                                                 1
     12           33.33    28.14    26.42    21.32    19.00    1.45     45.28     .32
                  48.32    40.80    38.30    30.91    27.55    1.59     40.00     .30
                  FRAGMENT 27.46               SIEVED 18.66ROCK PERCENT
                                                                 1
     20           25.77    20.79    17.36    16.21    12.75    1.51     43.02    1.44
                  38.91    31.39    26.21    24.47    19.25    1.61     39.25     .71
                  FRAGMENT 20.54               SIEVED 12.46ROCK PERCENT 10.73
                                                                 3
     30           22.46    18.13    17.13    15.15    14.43    1.22     53.96
                  27.40    22.11    20.89    18.48    17.60
                  FRAGMENT                     SIEVED  5.18ROCK PERCENT
                                                      (18.50)

      1=FIST
      2=CORE
      3=LOOSE
```

VEGA, TEXAS

PULLMAN SILTY CLAY LOAM (41,03,C,b)

Location: Watershed No. 1; 2450' S and 2700' W from NE cor. Sec. 10, League 322, 350' NW of SW cor. of watershed.
Vegetation and land use: Fallow
Topography: Nearly level upland plain (.3% gradient)
Drainage: Moderately well drained; slow to very slow permeability
Parent Material: Loamy to clayey loess-like sediments of the High Plains mantle.
Described and sampled by: Luther Geiger and G. A. Schumaker

Horizon	Description
Ap	0 to 5 inches. Brown (10YR 5/3) silty clay loam, dark brown (10YR 3/3) moist; cloddy and weak granular, dry; slightly sticky wet, friable moist; noncalcareous; about neutral; clear lower boundary.
B21	5 to 12 inches. Dark brown (7.5YR 4/2) light clay, dark brown (7.5YR 3/2) moist; moderate fine and very fine angular or irregular blocky structure; firm moist, very hard dry; a few pores .5-1mm in size; occasional small cluster of worm casts; neutral; clear lower boundary.
B22	12 to 19 inches. Dark brown (7.5YR 4/2) clay, dark brown (7.5YR 3/2) moist; moderate medium blocky breaking to fine and very fine angular (wedge-shaped) blocky structure; sticky, very firm, extremely hard; noncalcareous, neutral; shiny pressure faces or clay skins on moist ped surfaces; many very fine tortuous roots which tend to follow planes of structural weakness; slowly permeable (least permeable horizon); clear lower boundary.
B2b1	19 to 35 inches. Reddish brown (5YR 5/4) clay loam, reddish brown (5YR 4/4) moist; moderate medium blocky structure, blocks arranged in columns with little or no overlap between peds; slightly sticky wet, firm moist, very hard dry; ped surfaces calcareous, interiors of peds mostly non-effervescent; thin $CaCO_3$ coatings and veins common; roots throughout; a few pores up to .5mm; gradual lower boundary.
B2b2	35 to 60 inches. Reddish yellow (5YR 5/6) clay loam, reddish yellow (5YR 4/6) moist; weak prismatic breaking to weak to moderate medium blocky structure; firm moist, very hard dry; a few films and coatings of $CaCO_3$ otherwise noncalcareous and neutral; a few very fine roots; a few old root channels 1 to 2mm in size; common patchy thin black coatings (may be organic matter); abrupt boundary.
Cca	60 to 65 inches plus. Pink (5YR 7/4) clay loam, light reddish brown (5YR 6/4) moist; slightly sticky wet, hard dry; estimated 50% by volume segregated lime as soft to semi-hard masses; moderately to moderately slowly permeable.

VEGA, TEXAS

PULLMAN SILTY CLAY LOAM (41,03,C,b)

```
        WEIGHT  PERCENT   AND   VOLUME   PERCENT   OF  WATER   RETAINED

IDENTIFICATION           T E N S I O N S    (BARS)
                                                                        BD        TP      K
41   3    2   2      .1        .3        .6        3.        15.       G/CC      PCT     IN/HR

     DEPTH                                                                 3
        0           27.65     21.81     19.94     16.81     12.88      1.17     55.85
                    32.35     25.51     23.32     19.66     15.06
                    FRAGMENT                        SIEVED  11.57ROCK PERCENT  3.59
                                                                           1
        5           29.30     24.46     22.62     20.27     17.35      1.48     44.15     .89
                    43.36     36.20     33.47     29.99     25.67      1.74     34.34     .40
                    FRAGMENT  22.07                 SIEVED  15.92ROCK PERCENT
                                                                           1
       12           31.24     25.54     24.35     21.00     18.57      1.43     46.04     .25
                    44.67     36.52     34.82     30.03     26.55      1.71     35.47     .12
                    FRAGMENT  26.47                 SIEVED  19.06ROCK PERCENT  1.25
                                                                           1
       19           26.79     19.64     18.95     16.76     13.80      1.40     47.17     .17
                    37.50     27.49     26.53     23.46     19.32      1.55     41.51     .84
                    FRAGMENT  21.10                 SIEVED  12.92ROCK PERCENT  1.13
                                                                           1
       35           30.92     21.22     20.45     15.12     13.83      1.21     54.34    2.47
                    37.41     25.67     24.74     18.29     16.73      1.37     48.30    2.50
                    FRAGMENT  20.98                 SIEVED  13.47ROCK PERCENT  5.16

        1=FIST
        2=CORE
        3=LOOSE
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AUSTIN SILTY CLAY (42,01,C,a and b)

Location: Blacklands Experimental Watershed, Farm Rd. junction 1/4 mi. ESE Hdqs.; Pit a 120' SE into field, Pit b 20' SE into field.
Vegetation and land use: Winterpeas
Topography: 1½ percent slope
Drainage: Good
Parent Material: Upper highly calcareous marl of Pecan Gap member of Taylor marl
Described and sampled by: J. W. Huckabee, Jr. and G. A. Schumaker

Horizon	Description
Pit a	
A1p	0 to 12 inches. Dark grayish brown (10YR 4/2; 3/2 moist) silty clay; very fine weak granular; friable, sticky when wet; many medium pores; weak surface crust, highly calcareous; grades abruptly and smoothly into
A12	12 to 20 inches. Dark grayish brown (10YR 4/2; 3/2 moist) silty clay; fine moderately granular; slightly firm when moist, plastic when wet; many medium pores; highly calcareous; grades gradually and irregular into
A13	20 to 28 inches. Dark grayish brown (10YR 4/2; 3/2 moist) silty clay; numerous brown (10YR 5/3; 4/3 moist) vertical streaks of pencil size in diameter which appear to be worm casts; strong fine subangular blocky structure; slightly firm when moist, plastic when wet; strongly calcareous; gradual wavy boundary into
AC	28 to 41 inches. Pale brown (10YR 6/3; 5/3 moist) silty clay; strong fine subangular blocky; firm when moist, plastic when wet; many vertical streaks pencil-sized of lighter colored material from below $CaCO_3$ concretions common in lower part; highly calcareous; clear boundary.
C	41 to 45 inches plus. Very pale brown (10YR 7/3) highly calcareous marl. Streaks of harder and more compacted marl of only an inch more or less thick (10YR 8/3) occur.
Pit b	
A1p	0 to 11 inches. Dark grayish brown (10YR 4/2; 3/2 moist) silty clay; very fine weak granular; friable; sticky when wet; many medium pores, weak surface crust; highly calcareous; grades abruptly and smoothly into
A12	11 to 16 inches. Dark grayish brown (10YR 4/2; 3/2 moist) silty clay; fine moderately granular; firm when moist, plastic when wet; many medium pores; highly calcareous; grades gradually and irregularly into
AC	16 to 28 inches. Very pale brown (10YR 7/3; 6/3 moist) silty clay; strong fine to medium granular and subangular blocky structure; very friable when moist; slightly plastic when wet; $CaCO_3$ concretions common; highly calcareous; gradual boundary into
C	28 to 36 inches plus. Very pale brown (10YR 8/3; 7/3 moist) highly calcareous marl.

Remarks: This soil, like all other soils sampled for the Riesel Station at this time, is a prairie soil with original mid and tall grass cover.

AUSTIN SILTY CLAY (42,01,C,a and b)

WEIGHT PERCENT AND VOLUME PERCENT OF WATER RETAINED

IDENTIFICATION TENSIONS (BARS)

42 1 2 1	.1	.3	.6	3.	15.	BD G/CC	TP PCT	K IN/HR
DEPTH						1		
0	32.78	26.11	22.28	21.31	20.58	1.31	50.57	1.63
	42.94	34.20	29.18	27.91	26.95	1.63	38.49	3.12
	FRAGMENT	24.37		SIEVED	15.02ROCK	PERCENT	4.76	
					(23.02)	1		
12	24.06	22.53	21.03	20.33	19.92	1.42	46.42	2.60
	34.16	31.99	29.86	28.86	28.28	1.72	35.09	3.38
	FRAGMENT	22.48		SIEVED	7.88ROCK	PERCENT		
					(24.76)	1		
20	24.22	23.22	21.92	17.49	16.06	1.48	44.15	.88
	35.84	34.36	32.44	25.88	23.76	1.68	36.60	2.16
	FRAGMENT	22.47		SIEVED	15.44ROCK	PERCENT		
						1		
28	24.81	22.27	21.86	17.64	16.68	1.35	49.06	.49
	33.49	30.06	29.51	23.81	22.51	1.47	44.53	.66
	FRAGMENT	24.13		SIEVED	19.75ROCK	PERCENT	22.54	
						1		
41	21.66	19.23	18.35	16.74	14.20	1.61	39.25	1.30
	34.87	30.96	29.54	26.95	22.86	1.76	33.58	.78
	FRAGMENT	20.62		SIEVED	20.12ROCK	PERCENT	15.87	

IDENTIFICATION TENSIONS (BARS)

42 1 2 2	.1	.3	.6	3.	15.	BD G/CC	TP PCT	K IN/HR
DEPTH						1		
0	30.62	26.28	25.69	20.68	17.51	1.40	47.17	.64
	42.86	36.79	35.96	28.95	24.51	1.73	34.72	.37
	FRAGMENT	25.75		SIEVED	15.65ROCK	PERCENT		
						1		
11	26.19	24.30	22.98	20.56	17.78	1.49	43.77	.55
	39.02	36.20	34.24	30.63	26.49	1.75	33.96	1.04
	FRAGMENT	23.89		SIEVED	16.44ROCK	PERCENT	6.22	
						1		
16	24.69	22.28	21.32	18.96	15.44	1.47	44.53	.60
	36.29	32.75	31.34	27.87	22.69	1.62	38.87	1.47
	FRAGMENT	20.75		SIEVED	14.70ROCK	PERCENT	4.69	
						1		
28	25.60	23.02	21.99	19.23	16.18	1.41	46.79	2.55
	36.09	32.45	31.00	27.11	22.81	1.50	43.40	.66
	FRAGMENT	23.26		SIEVED	17.18ROCK	PERCENT	4.89	

1=FIST
2=CORE
3=LOOSE

CROCKETT CLAY LOAM (42,02,P,a and b)

Location: McLennan Co., 1½ mi. S Battle on Steinke farm, 220 yds. S of farmhouse
Vegetation and land use: Poor cover buffalograss, Texas wintergrass, bur clover
Topography: 2½ percent convex slope
Drainage: Rapid from surface
Parent Material: Wolf City sandy marl; Taylor marl member
Described and sampled by: A. J. Startz and G. A. Schumaker

Horizon	Description
Pit a	
A1p	0 to 5 inches. Brown (10YR 5/3) clay loam, brown (10YR 4/3) when moist; many fine roots; very fine subangular blocky structure; dry hard, moist friable, wet slightly sticky; pH 7.0: abrupt smooth boundary.
A12	5 to 11 inches. Brown (10YR 5/3) clay loam, brown (10YR 4/3) moist; weak medium subangular blocky structure; dry slightly hard, moist friable, wet slightly sticky; many fine roots; pH 6.5; abrupt smooth boundary.
B21	11 to 24 inches. Reddish brown (5YR 4/3) clay, dark reddish brown (5YR 3/3) moist, with few fine distinct mottlings of light gray (10YR 7/2) when dry; strong medium angular blocky structure; very few roots; dry hard, moist firm, wet plastic; pH 6.5; clear smooth boundary.
B22	24 to 42 inches. Reddish brown (5YR 4/3) clay, dark reddish brown (5YR 3/3) moist, with common fine distinct mottlings of light gray (10YR 7/2) when dry; strong coarse angular blocky structure; dry very hard, moist very firm; pH 6.5; gradual irregular boundary.
Bca	42 to 60 inches. Light olive brown (2.5Y 5/4) clay, (2.5Y 4/4) moist, with a few medium distinct reddish brown (5YR 4/3) dry mottlings; moderate coarse irregular blocky to angular blocky structure; dry very hard, moist very firm; few medium distinct $CaCO_3$ concretions; pH 7.5.
C	60 to 66 inches plus. Soft calcareous sandy marl (2.5Y 5/4) moist.
Pit b	
A1p	0 to 6 inches. Brown (10YR 5/3) clay loam, brown (10YR 4/3) when moist; many fine roots, very fine subangular blocky structure; dry hard, moist friable, wet slightly sticky; pH 7.0; abrupt smooth boundary.
A12	6 to 11 inches. Brown (10YR 5/3) clay loam, brown (10YR 4/3) when moist; weak medium subangular blocky structure; dry slightly hard, moist friable, wet slightly sticky; many fine roots; pH 6.5; abrupt smooth boundary.
B21	11 to 31 inches. Reddish brown (5YR 4/3) clay, dark reddish brown (5YR 3/3) when moist with few fine distinct mottlings of light gray (10YR 7/2) when dry; strong medium angular blocky structure; very few roots; dry very hard, moist firm, wet plastic; pH 6.5; clear smooth boundary.
B22	31 to 42 inches. Reddish brown (5YR 4/3) clay, dark reddish brown (5YR 3/3) moist with common fine distinct mottlings of light gray (10YR 7/2) when dry; strong coarse angular blocky structure; dry very hard, moist very firm; pH 6.5; gradual irregular boundary.
Bca	42 to 59 inches. Light olive brown (2.5Y 5/4) clay, (2.5Y 4/4) when moist with a few medium distinct reddish brown (5YR 4/3) dry mottlings; moderate coarse irregular blocky to angular blocky structure; dry very hard, moist very firm; few medium distinct $CaCO_3$ concretions; pH 7.5.
C	59 to 65 inches plus. Soft calcareous sandy marl (2.5Y 5/4) moist.

Remarks: The landowner reminded us that in 1954 this area had been rootplowed to a depth of about 20-24", accounting for some of the profile disturbance. It was cultivated to warm season temporary pasture (sudangrass) for a year or so afterwards.

CROCKETT CLAY LOAM (42,02,P,a and b)

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      WEIGHT  PERCENT  AND  VOLUME  PERCENT  OF  WATER  RETAINED

IDENTIFICATION        TENSIONS (BARS)
                                                                   BD         TP        K
42   2   1   1     .1        .3        .6        3.        15.     G/CC       PCT     IN/HR

    DEPTH                                                              1
     0            24.43     17.58     17.46     13.41     10.77     1.54     41.89      .29
                  37.62     27.07     26.88     20.65     16.58     1.72     35.09      .19
                  FRAGMENT  18.04                 SIEVED   9.99ROCK PERCENT  1.54
                                                                       1
     5            23.91     16.56     16.44     12.05     10.89     1.51     43.02      .04
                  36.10     25.00     24.82     18.19     16.44     1.66     37.36      .22
                  FRAGMENT  16.85                 SIEVED  10.63ROCK PERCENT  3.47
                                                                       1
    11            28.20     23.28     23.00     20.23     16.99     1.47     44.53      .29
                  41.45     34.22     33.81     29.73     24.97     1.80     32.08      .36
                  FRAGMENT  22.55                 SIEVED  15.44ROCK PERCENT
                                                                       1
    24            26.23     23.27     22.54     19.89     17.75     1.48     44.15      0
                  38.82     34.43     33.35     29.43     26.27     1.74     34.34
                  FRAGMENT  22.67                 SIEVED  13.12ROCK PERCENT  7.69
                                                        (16.50)        1
    42            29.19     22.72     20.07     17.74     16.67     1.54     41.89      0
                  44.95     34.98     30.90     27.31     25.67     1.83     30.94
                  FRAGMENT  21.95                 SIEVED  14.45ROCK PERCENT  7.65


IDENTIFICATION        TENSIONS (BARS)
                                                                   BD         TP        K
42   2   1   2     .1        .3        .6        3.        15.     G/CC       PCT     IN/HR

    DEPTH                                                              1
     0            25.32     17.56     16.57     12.03      9.06     1.55     41.51      .08
                  39.24     27.21     25.68     18.64     14.04     1.65     37.74      .13
                  FRAGMENT  16.51                 SIEVED   7.75ROCK PERCENT  1.90
                                                                       1
     6            26.74     19.31     18.96     14.03     11.27     1.50     43.40      .43
                  40.11     28.96     28.44     21.04     16.90     1.62     38.87      .36
                  FRAGMENT  18.89                 SIEVED  10.01ROCK PERCENT
                                                                       1
    11            34.32     29.56     26.05     18.55     15.64     1.46     44.91      .31
                  50.10     43.15     38.03     27.08     22.83     1.71     35.47      .04
                  FRAGMENT  27.06                 SIEVED  11.12ROCK PERCENT  2.09
                                                        (14.89)        1
    31            29.20     23.95     22.58     18.75     15.48     1.51     43.02      0
                  44.09     36.16     34.09     28.31     23.37     1.88     29.06
                  FRAGMENT  22.04                 SIEVED  14.58ROCK PERCENT
                                                                       1
    42            29.56     21.87     20.82     17.73     15.41     1.58     40.38      0
                  46.70     34.55     32.89     28.01     24.34     1.85     30.19
                  FRAGMENT  20.49                 SIEVED  18.69ROCK PERCENT


    1=FIST
    2=CORE
    3=LOOSE
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CROCKETT FINE SANDY LOAM (42,03,C,a and b)

Location: McLennan Co., 1½ mi. S Battle, on Steinke farm, cultivated field 500 yds. SE of house; pit b 50' NE of pit a.
Vegetation and land use: Oats
Topography: 1½ percent slope
Drainage: Fair
Parent Material: Wolf City sandy marl; Taylor marl member.
Described and sampled by: J. W. Huckabee, Jr. and G. A. Schumaker

Horizon	Description
Pit a	
A1p	0 to 5 inches. Dark grayish brown (10YR 5/2, 4/2 moist) fine sandy loam; weak fine blocky structure; dry soft, moist very friable; slightly acid; abrupt smooth boundary into
A12	5 to 11 inches. Dark grayish brown (10YR 4/2; 3/2 moist) fine sandy loam; weak fine subangular blocky structure; dry slightly hard, moist friable; slightly acid; abrupt smooth boundary into
B21	11 to 22 inches. Dark grayish brown (10YR 4/2, 3/2 moist) clay with about 30 percent reddish brown (5YR 4/4, 3/4 moist) and about 3 percent brownish yellow (10YR 6/6 moist) mottlings; weak fine angular blocky structure; dry very hard, moist firm, wet plastic; slightly acid; gradual smooth boundary into
B22	22 to 36 inches. Grayish brown (10YR 5/2; 4/2 moist) clay; weak fine angular blocky structure; dry very hard, moist firm, wet plastic; slightly acid; gradual smooth boundary into
Bca	36 to 50 inches. Grayish brown (10YR 5/2; 5/2 moist) clay; same structure as horizon above; neutral in reaction with small calcium carbonate concretions scattered about at the top of this layer and increasing in numbers with depth; a few yellow (2.5Y 7/6) mottlings in lower part of horizon; gradual smooth boundary into
C	50 to 60 inches plus. Grayish brown (2.5Y 5/2) clayey marl with many yellow (2.5Y 7/6) mottlings; parent material.
Pit b	
A1p	0 to 6 inches. Dark grayish brown (10YR 5/2; 4/2 moist) fine sandy loam; weak fine blocky structure; dry soft, moist very friable; slightly acid; abrupt smooth boundary into
B21	6 to 12 inches. Dark grayish brown (10YR 4/2; 3/2 moist) heavy clay with about 30% dark reddish brown (5YR 3/4 moist) and 10% brownish yellow (10YR 6/6 moist) mottlings; weak fine angular blocky structure; dry very hard, moist firm, wet plastic; slightly acid; gradual smooth boundary into
B22	12 to 27 inches. Grayish brown (10YR 5/2; 5/2 moist) heavy clay; weak fine angular blocky structure; dry very hard, moist firm, wet plastic; slightly acid; gradual smooth boundary into
Bca	27 to 50 inches. Grayish brown (10YR 5/2; 5/2 moist) heavy clay, a few yellow (2.5Y 7/6) mottlings; same structure as horizon above; neutral in reaction with small calcium carbonate concretions scattered about at the top of this layer and increasing in numbers with depth; gradual smooth boundary into
C	50 to 60 inches plus. Grayish brown (2.5Y 5/2) clayey marl with many yellow (2.5Y 7/6) mottlings; parent material.

CROCKETT FINE SANDY LOAM (42,03,C,a and b)

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    WEIGHT  PERCENT  AND  VOLUME  PERCENT  OF  WATER  RETAINED

IDENTIFICATION          T E N S I O N S  (BARS)
                                                              BD        TP         K
42   3   2   1      .1        .3        .6        3.        15.       G/CC      PCT      IN/HR

    DEPTH                                                       1
     0              22.58     11.24     8.14      7.43      5.41      1.61      39.25      .79
                    36.35     18.09     13.10     11.96     8.71      1.68      36.60     1.03
                    FRAGMENT  10.85                SIEVED   5.14ROCK  PERCENT   2.23
                                                                1
     5              22.37     17.49     15.52     12.43     7.07      1.57      40.75      .05
                    35.12     27.45     24.36     19.51     11.09     1.78      32.83      .19
                    FRAGMENT  16.60                SIEVED   6.10ROCK  PERCENT
                                                                1
    11              29.48     24.40     22.77     20.56     17.75     1.50      43.40      .19
                    44.22     36.60     34.15     30.84     26.62     1.73      34.72      .05
                    FRAGMENT  24.80                SIEVED  15.08ROCK  PERCENT
                                                                1
    22              29.99     27.16     23.97     20.38     16.17     1.50      43.40      0
                    44.98     40.74     35.95     30.57     24.25     1.80      32.08
                    FRAGMENT  28.64                SIEVED  14.81ROCK  PERCENT
                                                                1
    36              27.94     23.84     22.35     18.22     16.16     1.52      42.64      0
                    42.46     36.23     33.97     27.69     24.56     1.83      30.94
                    FRAGMENT  22.57                SIEVED  17.45ROCK  PERCENT   6.34
                                                                1
    50              26.08     23.24     22.56     18.87     14.58     1.55      41.51      0
                    40.42     36.02     34.96     29.24     22.59     1.86      29.81
                    FRAGMENT  21.39                SIEVED  14.20ROCK  PERCENT  13.85
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IDENTIFICATION          T E N S I O N S  (BARS)
                                                              BD        TP         K
42   3   2   2      .1        .3        .6        3.        15.       G/CC      PCT      IN/HR

    DEPTH                                                       1
     0              24.09     13.90     10.34     8.75      6.60      1.60      39.62      .86
                    38.54     22.24     16.54     14.00     10.56     1.67      36.98      .26
                    FRAGMENT  12.60                SIEVED  17.43ROCK  PERCENT
                                                      ( 5.63)   1
     6              29.00     24.08     23.80     18.75     14.65     1.46      44.91      .76
                    42.34     35.15     34.74     27.37     21.38     1.62      38.87      .42
                    FRAGMENT  22.79                SIEVED  12.34ROCK  PERCENT
                                                                1
    12              30.76     25.13     24.25     22.22     19.40     1.46      44.91      0
                    44.90     36.68     35.40     32.44     28.32     1.74      34.34
                    FRAGMENT  26.86                SIEVED  12.52ROCK  PERCENT
                                                      (17.36)   1
    27              25.77     22.34     20.87     18.64     17.22     1.51      43.02      0
                    38.91     33.73     31.51     28.14     26.00     1.81      31.70
                    FRAGMENT  22.40                SIEVED  14.32ROCK  PERCENT   4.67
                                                                1
    50              27.75     26.39     24.03     22.83     14.63     1.57      40.75      0
                    43.56     41.43     37.72     35.84     22.96     1.88      29.06
                    FRAGMENT  24.33                SIEVED  14.23ROCK  PERCENT  36.63

       1=FIST
       2=CORE
       3=LOOSE
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HOUSTON BLACK CLAY (42,04,C,a and b)

Location: Blacklands Experimental Watershed, 3/4 mi. S of Sta. Hdqr. along gravel road;
Pit a 20' E of road in field and Pit b 70' E of road in field.
Vegetation and land use: Oats
Topography: 0-1 percent slopes
Drainage: Fair
Parent Material: Lower highly calcareous marl of Pecan Gap, Taylor marl group
Described and sampled by: J. W. Huckabee, Jr. and G. A. Schumaker

Horizon	Description
Pit a	
A1p	0 to 10 inches. Very dark gray (10YR 3/1; 3/1 moist) heavy clay; weak very fine granular; highly calcareous; plastic and sticky wet, friable moist; grades clear and smoothly into
A12	10 to 19 inches. Very dark gray (10YR 3/1; 3/1 moist) heavy clay; moderate very fine irregular blocky; plastic and sticky wet, friable moist, hard dry; highly calcareous; grades gradually and irregularly into
A13	19 to 39 inches. Very dark gray (10YR 3/1; 3/1 moist) heavy clay; less crumbly and more compact and blocky than layer above; highly calcareous; grades gradually into
AC	39 to 60 inches. Dark gray (10YR 4/1; 4/1 moist) heavy clay; compact and blocky like layer above; highly calcareous; grades clearly and smoothly into
C	60 to 66 inches plus. Light gray (10YR 7/1) and very pale brown (10YR 8/3) marly clay; parent material.
Pit b	
A1p	0 to 10 inches. Very dark gray (10YR 3/1; 3/1 moist) heavy clay; weak very fine granular; highly calcareous; plastic and sticky wet, friable moist; grades clear and smoothly into
A12	10 to 20 inches. Very dark gray (10YR 3/1; 3/1 moist) heavy clay; moderate very fine irregular blocky; plastic and sticky wet, friable moist, hard dry; highly calcareous; grades gradually and irregularly into
A13	20 to 38 inches. Very dark gray (10YR 3/1; 3/1 moist) heavy clay; less crumbly and more compact and blocky than layer above; highly calcareous; grades gradually into
AC	38 to 68 inches. Dark gray (10YR 4/1; 4/1 moist) heavy clay; compact and blocky like layer above; highly calcareous; grades clearly and smoothly into
C	68 to 74 inches plus. Light gray (10YR 7/1) and very pale brown (10YR 8/3) marly clay; parent material.

HOUSTON BLACK CLAY (42,04,C,a and b)

WEIGHT PERCENT AND VOLUME PERCENT OF WATER RETAINED

IDENTIFICATION TENSIONS (BARS)

42 4 2 1	.1	.3	.6	3.	15.	BD G/CC	TP PCT	K IN/HR
DEPTH						1		
0	32.83	30.50	30.49	28.50	22.17	1.36	48.68	0
	44.64	41.48	41.46	38.76	30.15	1.77	33.21	.24
	FRAGMENT	29.40		SIEVED	19.52ROCK	PERCENT		
						1		
10	30.95	30.52	28.45	27.08	23.68	1.30	50.94	.31
	40.23	39.67	36.98	35.20	30.78	1.78	32.83	.36
	FRAGMENT	30.31		SIEVED	20.82ROCK	PERCENT		
						1		
19	29.82	28.47	27.67	27.22	23.76	1.37	48.30	.62
	40.85	39.00	37.90	37.29	32.55	1.74	34.34	.24
	FRAGMENT	28.06		SIEVED	25.70ROCK	PERCENT		
						1		
39	31.37	30.99	30.20	26.78	25.11	1.37	48.30	.12
	42.97	42.45	41.37	36.68	34.40	1.76	33.58	.11
	FRAGMENT	30.67		SIEVED	21.71ROCK	PERCENT		

IDENTIFICATION TENSIONS (BARS)

42 4 2 2	.1	.3	.6	3.	15.	BD G/CC	TP PCT	K IN/HR
DEPTH						1		
0	34.16	32.71	31.20	27.42	23.19	1.37	48.30	.33
	46.79	44.81	42.74	37.56	31.77	1.78	32.83	1.01
	FRAGMENT	31.49		SIEVED	19.64ROCK	PERCENT		
						1		
10	34.67	32.23	31.85	29.77	25.85	1.32	50.19	.10
	45.76	42.54	42.04	39.29	34.12	1.75	33.96	.19
	FRAGMENT	31.13		SIEVED	28.93ROCK	PERCENT	26.74	
						1		
20	34.99	33.56	32.88	29.80	26.72	1.34	49.43	.25
	46.88	44.97	44.05	39.93	35.80	1.72	35.09	.04
	FRAGMENT	31.84		SIEVED	23.02ROCK	PERCENT		
						1		
38	33.55	32.85	31.73	29.46	25.91	1.36	48.68	.07
	45.62	44.67	43.15	40.06	35.23	1.75	33.96	0
	FRAGMENT	31.87		SIEVED	19.55ROCK	PERCENT		
					(25.58)			

1=FIST
2=CORE
3=LOOSE

HOUSTON*CLAY (42,05,C,a and b)

Location: Blacklands Experimental Watershed, 290' E or raingage W2A and 25' N of gravel road; pit b 50' N of pit a.
Vegetation and land use: Oats
Topography: about 3 percent slope
Drainage: Good
Parent Material: Lower highly calcareous marl of Pecan Gap; Taylor marl member.
Described and sampled by: J. W. Huckabee, Jr. and G. A. Schumaker

Horizon	Description
Pit a	
A1p	0 to 7 inches. Olive gray (2.5Y 4/2; 3/2 moist) clay; weak fine irregular blocky structure; dry hard, moist friable; calcareous; abrupt smooth boundary into
A12	7 to 19 inches. Olive gray (2.5Y 4/2; 4/2 moist) clay; moderate medium irregular blocky structure; dry, very hard, moist firm, wet plastic and sticky; calcareous; gradual wavy boundary into
A13	19 to 30 inches. Olive gray (2.5Y 4/2; 4/2 moist) clay; moderate medium to coarse irregular blocky structure; same consistence as horizon above; calcareous; grades gradually into
AC	30 to 50 inches. Pale olive (5Y 6/3; 5/3 moist) clay; moderate medium to coarse irregular blocky structure; dry very hard, moist firm, and wet plastic and sticky; few soft calcium carbonate concretions; calcareous; gradual wavy boundary into
C	50 to 60 inches plus. Olive yellow (5Y 6/6; 5/6 moist) clay; parent material.
Pit b	
A1p	0 to 8 inches. Olive gray (5Y 4/2; 3/2 moist) clay; weak fine irregular blocky structure; dry hard, moist friable, wet sticky; calcareous; abrupt smooth boundary into
A12	8 to 28 inches. Dark grayish brown (2.5Y 4/2; 3/2 moist) clay; moderate medium irregular blocky; dry very hard, moist firm, wet plastic and sticky; highly calcareous; gradual wavy boundary into
A13	28 to 34 inches. Dark grayish brown (2.5Y 4/2; 3/2 moist) clay; moderate medium to coarse irregular blocky structure; same consistence as horizon above; highly calcareous; grades gradually into
AC	34 to 46 inches. Olive (5Y 5/3; 4/3 moist) clay; same structure as horizon above; same consistence as horizon above; few soft calcium carbonate concretions; highly calcareous; gradual wavy boundary into
C	46 to 60 inches plus. Olive yellow (5Y 6/6; 5/6 moist) clay; parent material.

*Recorrelated as Heiden clay (1966).

HOUSTON CLAY (42,05,C,a and b)

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      WEIGHT  PERCENT  AND  VOLUME  PERCENT  OF  WATER  RETAINED

IDENTIFICATION        T E N S I O N S  (BARS)
                                                                 BD       TP       K
42   5   2   1     .1        .3        .6        3.        15.      G/CC      PCT    IN/HR

    DEPTH                                                          1
     0             33.00     29.35     28.82     25.00     19.85     1.39     47.55    1.94
                   45.87     40.79     40.05     34.75     27.59     1.85     30.19     .17
                   FRAGMENT  29.07                  SIEVED 18.65ROCK PERCENT
                                                                     1
     7             29.56     28.46     28.28     25.30     21.88     1.42     46.42     .86
                   41.97     40.41     40.15     35.92     31.06     1.73     34.72     .70
                   FRAGMENT  27.05                  SIEVED 18.47ROCK PERCENT 24.86
                                                                     1
    19             28.74     26.66     26.04     23.42     20.86     1.45     45.28     .36
                   41.67     38.65     37.75     33.95     30.24     1.73     34.72     .38
                   FRAGMENT  26.47                  SIEVED 17.54ROCK PERCENT
                                                                     1
    30             26.97     26.15     25.95     23.99     20.37     1.42     46.42     .25
                   38.29     37.13     36.84     34.06     28.92     1.73     34.72     .17
                   FRAGMENT  25.54                  SIEVED 16.45ROCK PERCENT
                                                                     1
    50             32.98     30.12     29.64     26.83     21.61     1.40     47.17     0
                   46.17     42.16     41.49     37.56     30.25     1.75     33.96     .80
                   FRAGMENT  30.05                  SIEVED 28.00ROCK PERCENT 51.70


IDENTIFICATION        T E N S I O N S  (BARS)
                                                                 BD       TP       K
42   5   2   2     .1        .3        .6        3.        15.      G/CC      PCT    IN/HR

    DEPTH                                                          1
     0             31.92     29.06     28.38     25.64     20.85     1.40     47.17    1.03
                   44.68     40.68     39.73     35.89     29.19     1.76     33.58     .16
                   FRAGMENT  30.27                  SIEVED 17.07ROCK PERCENT 29.81
                                                                     1
     8             31.86     28.34     27.99     25.62     21.85     1.36     48.68     .12
                   43.32     38.54     38.06     34.84     29.71     1.69     36.23     .18
                   FRAGMENT  31.20                  SIEVED 17.86ROCK PERCENT 29.00
                                                                     1
    28             31.38     28.71     28.07     25.30     23.36     1.48     44.15     .30
                   46.44     42.49     41.54     37.44     34.57     1.79     32.45     .30
                   FRAGMENT  27.42                  SIEVED 18.00ROCK PERCENT 37.68
                                                        (31.65)      1
    34             32.00     30.15     29.85     26.21     22.10     1.47     44.53     0
                   47.04     44.32     43.87     38.52     32.48     1.77     33.21     .15
                   FRAGMENT  28.25                  SIEVED  9.06ROCK PERCENT 37.01
                                                        (30.81)      1
    46             36.68     28.78     27.23     25.86     21.05     1.46     44.91     .03
                   53.55     42.01     39.75     37.75     30.73     1.75     33.96     .34
                   FRAGMENT  26.75                  SIEVED 17.55ROCK PERCENT 54.54


        1=FIST
        2=CORE
        3=LOOSE
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TRINITY CLAY (42,07,P,a and b)

Location: Blacklands Experimental Watershed; Pit a 225' E of Y-2 measuring station, Pit b 290' W of Y measuring station.
Vegetation and land use: Bermudagrass, buffalograss, Texas wintergrass dominant; some broomweed and mesquite trees.
Topography: about 1% slope; floodplain.
Drainage: Good; occasional overflow
Parent Material: Recent alluvium from Blackland soils
Described and sampled by: J. W. Huckabee, Jr. and G. A. Schumaker

Horizon	Description
Pit a	
A1p	0 to 6 inches. Very dark gray (10YR 3/1; 3/1 moist) clay; weak fine irregular blocky; crumbly and friable when slightly moist; very sticky when wet; strongly calcareous; grades abruptly and smoothly into
A12	6 to 23 inches. Very dark gray (10YR 3/1;3/1 moist) clay; moderate fine irregular blocky; very sticky and plastic when wet, dry hard; strongly calcareous; grades clearly and smoothly into
A13	23 to 64 inches. Dark gray (10YR 4/1; 4/1 moist) clay; moderate fine irregular blocky; same consistence as above; strongly calcareous.
C	64 to 70 inches plus. Lower highly calcareous marl of the Pecan Gap geologic material; Taylor marl member.
Pit b	
A1p	0 to 5 inches. Very dark gray (10YR 3/1; 3/1 moist) clay; weak fine subangular blocky; crumbly and friable when slightly moist, very sticky when wet; strongly calcareous; grades abruptly and smoothly into
A12	5 to 30 inches. Very dark gray (10YR 3/1; 3/1 moist) clay; moderate fine subangular blocky; very sticky and plastic when wet, dry hard; strongly calcareous; grades clearly and smoothly into
A13	30 to 38 inches. Dark gray (10YR 4/1; 4/1 moist) clay; moderate fine subangular blocky; same consistence as above; strongly calcareous.
C	38 to 60 inches plus. Grayish brown (10YR 5/2; 5/2 moist) Taylor marl; geological marine marl; contains few small very pale brown splotches. Also concretions of calcium carbonate and a few soft iron concretions. The marl mass is calcareous.

TRINITY CLAY (42,07,P,a and b)

```
     WEIGHT  PERCENT  AND  VOLUME  PERCENT  OF  WATER  RETAINED

IDENTIFICATION        T E N S I O N S  (BARS)
                                                                    BD        TP        K
42   7   1   1      .1        .3        .6        3.        15.     G/CC      PCT     IN/HR

     DEPTH                                                             1
       0            37.77     31.84     31.42     28.94     26.17     1.40     47.17      .33
                    52.87     44.57     43.98     40.51     36.63     1.71     35.47      .11
                    FRAGMENT 31.53                 SIEVED 20.52ROCK PERCENT 41.61
                                                            (34.79)    1
       6            35.21     32.86     31.17     25.53     24.83     1.35     49.06      .11
                    47.53     44.36     42.07     34.46     33.52     1.83     30.94      .19
                    FRAGMENT 34.35                 SIEVED 21.61ROCK PERCENT
                                                                       1
      23            30.06     29.33     28.31     26.73     24.59     1.33     49.81       0
                    39.97     39.00     37.65     35.55     32.70     1.76     33.58
                    FRAGMENT 29.16                 SIEVED 22.51ROCK PERCENT  4.79


IDENTIFICATION        T E N S I O N S  (BARS)
                                                                    BD        TP        K
42   7   1   2      .1        .3        .6        3.        15.     G/CC      PCT     IN/HR

     DEPTH                                                             1
       0            40.90     37.16     34.75     31.00     27.27     1.31     50.57      .24
                    53.57     48.67     45.52     40.61     35.72     1.65     37.74      .90
                    FRAGMENT 35.75                 SIEVED 22.36ROCK PERCENT  4.48
                                                            (25.71)    1
       5            34.50     32.53     31.12     29.29     26.13     1.39     47.55      .11
                    47.95     45.21     43.25     40.71     36.32     1.67     36.98      .49
                    FRAGMENT 30.87                 SIEVED 33.23ROCK PERCENT 38.46
                                                                       1
      30            35.06     31.85     31.57     29.59     26.56     1.41     46.79      .98
                    49.43     44.90     44.51     41.72     37.44     1.97     25.66      .79
                    FRAGMENT 30.82                 SIEVED 35.05ROCK PERCENT 23.90
                                                                       1
      38            33.97     32.41     31.60     28.38     25.56     1.39     47.55       0
                    47.21     45.04     43.92     39.44     35.52     1.82     31.32
                    FRAGMENT 30.88                 SIEVED 20.71ROCK PERCENT 17.60

      1=FIST
      2=CORE
      3=LOOSE
```

BURLESON CLAY (42,08,C,a)

Location: McLennan Co.; 1050' E of bridge on Brushy Creek on FM Road 1860, then 30' S in field.
Vegetation and land use: Cultivated
Topography: About 1 percent slope
Drainage: Slow
Parent Material: Terrace alluvium of weakly calcareous clays
Described and sampled by: J. W. Huckabee, Jr. and G. A. Schumaker

Horizon	Description
A1p	0 to 6 inches. Dark gray (5Y 4/1; 3/1 moist) clay; moderate very fine subangular blocky structure; friable when moist, plastic when wet; weak surface crusts; numerous fine fibrous roots; porous; non-calcareous; pH 7.5; clear boundary.
A12	6 to 20 inches. Very dark gray (10YR 3/1; 3/1 moist) heavy clay; weak blocky to massive structure; firm when moist; stiff to plastic when wet; hard when dry; few fine fibrous roots; noncalcareous; pH 7.5; gradual smooth boundary.
A13	20 to 38 inches. Very dark gray (10YR 3/1; 3/1 moist) heavy clay; moderate medium blocky structure; firm when moist; plastic when wet, very hard dry; few very fine fibrous roots; noncalcareous; pH 7.5; gradual smooth boundary.
AC	38 to 60 inches. Dark gray (10YR 4/1; 4/1 moist) heavy clay; weak blocky to massive structure; firm when moist, stiff when wet and very hard dry; numerous calcium carbonate concretions; very few fine fibrous roots; noncalcareous; pH 8.0; gradual smooth boundary.
C	60 to 66 inches plus. Light olive gray (5Y 7/2; 6/2 moist) heavy clay; massive structure; very firm moist, stiff when wet and very hard dry; numerous calcium carbonate concretions, slightly calcareous; few very small chert gravel and few very small quartz sand particles scattered throughout.

Remarks: The parent material here is marine and alluvial montmorillonitic clays that generally contain somewhat less calcium carbonate and more silt and sand than the parent materials of the more granular and naturally crumbly Houston black clay soils. During rains the immediate surface of the Burleson soils slakes and seals over and permits very slow infiltration. When the soil dries without tillage, a hard crust that prevents emergence of seedlings is formed. This soil cracks deeply when dry. It is considered a moderately high productive soil.

RIESEL, TEXAS

BURLESON CLAY (42,08,C,a)

```
      WEIGHT  PERCENT  AND  VOLUME  PERCENT  OF  WATER  RETAINED

IDENTIFICATION         T E N S I O N S  (BARS)
                                                                 BD        TP       K
42   8   2   1      .1        .3        .6        3.        15.        G/CC      PCT     IN/HR

     DEPTH                                                            3
       0          30.09     21.80     20.71     19.76     16.42     1.17     55.85
                  35.20     25.50     24.23     23.11     19.21
                  FRAGMENT                        SIEVED 13.70ROCK PERCENT
                                                                      1
       6          29.31     24.84     23.84     19.99     17.43     1.41     46.79      .10
                  41.32     35.02     33.61     28.18     24.57     1.66     37.36      .36
                  FRAGMENT 23.40                  SIEVED 15.21ROCK PERCENT
                                                                      1
      20          28.20     23.61     22.83     20.83     17.98     1.47     44.53       0
                  41.45     34.70     33.56     30.62     26.43     1.77     33.21      .03
                  FRAGMENT 24.28                  SIEVED  8.45ROCK PERCENT 16.08
                                                         (16.66)      1
      38          27.81     26.37     24.69     22.35     20.93     1.38     47.92      .09
                  38.37     36.39     34.07     30.84     28.88     1.69     36.23      .15
                  FRAGMENT 27.23                  SIEVED 17.44ROCK PERCENT  2.14

      1=FIST
      2=CORE
      3=LOOSE
```

BURLESON CLAY (42,08,C,b)

Location: McLennan Co.; 1000' E of bridge on Brushy Creek on FM Road 1860, then 30' S in field.
Vegetation and land use: Cultivated
Topography: About 1 percent slope
Drainage: Slow
Parent Material: Terrace alluvium of weakly calcareous clays
Described and sampled by: J. W. Huckabee, Jr. and G. A. Schumaker

Horizon	Description
A1p	0 to 6 inches. Dark gray (5Y 4/1; 3/1 moist) clay; moderate very fine subangular blocky structure; friable when moist, plastic when wet; weak surface crusts; numerous fine fibrous roots; porous; noncalcareous; pH 7.5; clear boundary.
A12	6 to 20 inches. Very dark gray (5Y 3/1; 3/1 moist) heavy clay; weak blocky to massive structure; firm when moist; stiff to plastic when wet; hard when dry; few fine fibrous roots; noncalcareous; pH 7.5; gradual smooth boundary.
A13	20 to 31 inches. Very dark gray (5Y 3/1; 3/1 moist) heavy clay; moderate medium blocky structure; very firm when moist, stiff and plastic when wet and very hard dry; few very fine fibrous roots; noncalcareous; pH 7.5; few calcium carbonate concretions scattered throughout; this seems to be a very dense layer; gradual boundary.
AC	31 to 60 inches. Dark gray (5Y 4/1; 4/1 moist) heavy clay; massive structure; firm when moist, stiff when wet and very hard dry; noncalcareous; few small soft calcium carbonate concretions; pH 8.0; gradual boundary.
C	60 to 66 inches plus. Light olive gray (5Y 6/2) heavy clay, 10 percent yellow (5Y 7/6 moist) mottlings; massive structure; extremely firm when moist; stiff when wet; very hard dry; $CaCO_3$ concretions common; calcareous; pH 8.0.

BURLESON CLAY (42,08,C,b)

```
        WEIGHT  PERCENT  AND  VOLUME  PERCENT  OF  WATER  RETAINED

IDENTIFICATION        T E N S I O N S  (BARS)
                                                                 BD      TP       K
42   8   2   2     .1       .3       .6       3.       15.      G/CC    PCT     IN/HR

    DEPTH                                                           3
     0            27.27    21.22    20.85    19.28    16.52     1.29    51.32
                  35.17    27.37    26.89    24.87    21.31
                  FRAGMENT                     SIEVED 13.12ROCK PERCENT
                                                                    1
     6            28.79    24.59    21.52    18.79    18.06     1.43    46.04     .58
                  41.16    35.16    30.77    26.86    25.82     1.69    36.23     .50
                  FRAGMENT 24.50               SIEVED 14.63ROCK PERCENT  8.45
                                                                    1
    20            26.92    22.97    21.24    19.53    18.66     1.46    44.91     .48
                  39.30    33.53    31.01    28.51    27.24     1.79    32.45     .22
                  FRAGMENT 24.31               SIEVED  9.19ROCK PERCENT  3.68
                                                     (17.75)        1
    31            26.45    24.69    22.27    19.99    19.16     1.43    46.04     .12
                  37.82    35.30    31.84    28.58    27.39     1.64    38.11     .20
                  FRAGMENT 26.89               SIEVED 27.62ROCK PERCENT 36.59

      1=FIST
      2=CORE
      3=LOOSE
```

WILSON CLAY LOAM (42,09,P,a and b)

Location: McLennan Co.; 1.5 mi. S Battle on Steinke farm in pasture 400 yds. S of house; pit b 60' NE of pit a.
Vegetation and land use: Bermudagrass
Topography: 1½ percent slope
Drainage: Slow
Parent Material: Wolf City silty marl; Taylor marl member.
Described and sampled by: J. W. Huckabee, Jr. and G. A. Schumaker

Horizon	Description
Pit a	
A1p	0 to 4 inches. Dark gray (10YR 4/1; 3/1 moist) clay loam; weak fine granular structure, more compacted than layer below; friable when moist, sticky when wet and slightly hard dry; slightly hard surface crust 1/4 inch thick when dry; numerous fine fibrous roots and many worm casts; pH 6.5; clear boundary into
A12	4 to 13 inches. Dark gray (10YR 4/1; 3/1 moist) clay loam; weak to moderate fine granular structure; same consistence as horizon above; grades clearly into
B21	13 to 25 inches. Very dark gray (10YR 3/1; 3/1 moist) dense clay; moderate fine to medium irregular blocky; sticky and stiff when wet, firm when moist and hard when dry; pH 6.5; gradual boundary into
B22	25 to 35 inches. Dark gray (10YR 4/1; 3/1 moist) dense clay; medium irregular to angular blocky; same consistence as horizon above; pH 6.8; gradual boundary into
Bca	35 to 56 inches. Dark gray (10YR 4/1; 4/1 moist) dense clay; weak medium to coarse angular blocky structure; same consistence as horizon above; pH 7.5; few calcium carbonate concretions throughout horizon; clear boundary into
C	56 to 60 inches plus. Dark grayish brown (2.5Y 4/2) and light olive brown (2.5Y 5/4) clay parent material.
Pit b	
A1p	0 to 4 inches. Dark grayish brown (10YR 4/2; 3/2 moist) clay loam; weak fine granular structure; friable when moist, sticky when wet and slightly hard dry; slightly hard surface crust 1/4 inch thick when soil dries after rain; numerous fine fibrous roots and many worm casts; pH 7.0; clear boundary into
A12	4 to 10 inches. Dark grayish brown (10YR 4/2; 3/2 moist) clay loam; weak to moderate fine granular structure; same consistence as horizon above; pH 7.0; grades clearly into
B21	10 to 24 inches. Very dark gray (10YR 3/1; 3/1 moist) dense clay; moderate fine to medium irregular blocky; sticky and stiff when wet, firm when moist and hard when dry; pH 7.0; gradual boundary into
Bca	24 to 46 inches. Dark gray (10YR 4/1; 3/1 moist) dense clay; weak medium to coarse angular blocky structure; same consistence as horizon above; pH 7.5; few calcium carbonate concretions throughout; clear boundary into
C	46 to 60 inches plus. Olive (5Y 5/3; 4/3 moist) and olive yellow (5Y 6/6 moist) clay parent material.

WILSON CLAY LOAM (42,09,P,a and b)

WEIGHT PERCENT AND VOLUME PERCENT OF WATER RETAINED

IDENTIFICATION	TENSIONS (BARS)							
						BD	TP	K
42 9 1 1	.1	.3	.6	3.	15.	G/CC	PCT	IN/HR
DEPTH						1		
0	24.84	19.53	15.26	12.50	10.58	1.50	43.40	.29
	37.26	29.29	22.89	18.75	15.87	1.62	38.87	.10
	FRAGMENT	20.70		SIEVED	8.74ROCK	PERCENT		
						1		
4	21.51	19.10	15.07	13.23	10.94	1.45	45.28	.35
	31.18	27.69	21.85	19.18	15.86	1.55	41.51	.23
	FRAGMENT	18.11		SIEVED	10.59ROCK	PERCENT		
						1		
13	26.40	20.98	18.60	15.99	14.33	1.39	47.55	.26
	36.69	29.16	25.85	22.22	19.91	1.61	39.25	.61
	FRAGMENT	20.42		SIEVED	13.02ROCK	PERCENT		
						1		
25	23.41	20.56	18.55	16.95	15.06	1.53	42.26	0
	35.81	31.45	28.38	25.93	23.04	1.73	34.72	
	FRAGMENT	20.38		SIEVED	13.24ROCK	PERCENT	1.48	
						1		
35	22.28	20.83	17.82	16.10	15.21	1.58	40.38	0
	35.20	32.91	28.15	25.43	24.03	1.81	31.70	
	FRAGMENT	20.28		SIEVED	23.22ROCK	PERCENT	33.14	
						1		
56	25.25	20.75	19.54	17.29	16.03	1.54	41.89	0
	38.88	31.95	30.09	26.62	24.68	1.85	30.19	
	FRAGMENT	20.88		SIEVED	13.25ROCK	PERCENT	5.42	

IDENTIFICATION	TENSIONS (BARS)							
						BD	TP	K
42 9 1 2	.1	.3	.6	3.	15.	G/CC	PCT	IN/HR
DEPTH						1		
0	25.67	19.07	16.74	13.79	11.85	1.50	43.40	0
	38.50	28.60	25.11	20.68	17.77	1.64	38.11	.06
	FRAGMENT	19.81		SIEVED	9.60ROCK	PERCENT		
						1		
4	27.89	20.00	17.91	14.15	12.72	1.42	46.42	.73
	39.60	28.40	25.43	20.09	18.06	1.58	40.38	.21
	FRAGMENT	20.98		SIEVED	12.82ROCK	PERCENT	4.13	
						1		
10	26.42	21.76	20.54	18.74	17.18	1.49	43.77	.30
	39.36	32.42	30.60	27.92	25.59	1.74	34.34	.09
	FRAGMENT	21.27		SIEVED	14.14ROCK	PERCENT		
						1		
24	25.99	22.78	19.59	17.69	16.62	1.52	42.64	.13
	39.50	34.62	29.77	26.88	25.26	1.75	33.96	.12
	FRAGMENT	22.03		SIEVED	16.82ROCK	PERCENT	10.38	
						1		
46	27.87	23.11	22.11	19.71	17.43	1.44	45.66	0
	40.13	33.27	31.83	28.38	25.09	1.82	31.32	
	FRAGMENT	23.27		SIEVED	14.40ROCK	PERCENT	2.08	

1=FIST
2=CORE
3=LOOSE

COLBY SILT LOAM (44,01,P,a and b)

Location: Webster Co.; 0.25 mi. S and 0.13 mi. W of NE cor. of Sec. 31, T4N R9W.
Vegetation and land use: Native grasses
Topography: 17 percent upland slope
Drainage: Excessive surface
Parent Material: Peorian loess
Described and sampled by: H. E. Paden and G. A. Schumaker

Horizon	Description
Pit a	
A1	0 to 5 inches. Dark grayish brown (10YR 4/2, moist) heavy silt loam; weak, fine and medium granular structure; slightly hard, very friable; noncalcareous; abrupt smooth boundary.
AC	5 to 11 inches. Brown (10YR 5/3, moist) silt loam; weak, fine and medium prismatic structure breaking to weak, medium granular structure; slightly hard, very friable; calcareous, violent effervescence; clear smooth boundary.
C1ca	11 to 29 inches. Dark yellowish brown (10YR 4/4, moist) silt loam; massive (structureless); slightly hard, very friable; many medium to fine distinct pale brown (10YR 6/3, moist) mottles; calcareous, violent effervescence; calcium carbonate is soft to slightly hard segregations or concretions; some cleavage planes are coated with calcium carbonate; clear smooth boundary.
C2	29 to 38 inches. Light olive brown (2.5Y 5/4, moist) silt loam; massive (structureless); slightly hard, very friable; calcareous, violent effervescence; many medium and fine distinct light yellowish brown (10YR 6/3, moist) mottles; calcium carbonate is mostly soft to slightly hard concretions.
	Note: Many worm casts 0 to 11 inches.
Pit b	
A1	0 to 6 inches. Very dark grayish brown (10YR 3/2, moist) silt loam; weak, fine granular structure; slightly hard, very friable; calcareous, violent effervescence; many worm casts; clear smooth boundary.
Ac	6 to 11 inches. Dark grayish brown (2.5Y 4/2, moist) silt loam; weak medium prismatic structure breaking to weak, fine granular structure; slightly hard, very friable; calcareous, violent effervescence; many worm casts; calcium carbonate is soft to slightly hard oval concretions, some cleavage planes are coated with calcium carbonate; clear smooth boundary.
Cca	11 to 25 inches. Light olive brown (2.5Y 5/3, moist) silt loam; massive (structureless); slightly hard, very friable; many fine and medium distinct yellowish brown (10YR 5/6, moist) mottles; calcareous, violent effervescence; calcium carbonate is concretions which are soft to slightly hard, some cleavage planes are calcium carbonate coated.

COLBY SILT LOAM (44,01,P,a and b)

```
      WEIGHT  PERCENT  AND  VOLUME  PERCENT  OF  WATER  RETAINED

IDENTIFICATION       T E N S I O N S  (BARS)
                                                                  BD       TP        K
44   1   1   1     .1        .3        .6        3.       15.      G/CC     PCT     IN/HR

     DEPTH                                                            1
       0           35.23     29.18     28.45     21.34    16.32     1.38     47.92      .81
                   48.61     40.26     39.26     29.44    22.52     1.66     37.36      .18
                   FRAGMENT  27.97                SIEVED  13.34ROCK PERCENT
                                                                      1
       5           34.05     29.99     27.96     22.93    16.12     1.39     47.55      .16
                   47.32     41.68     38.86     31.87    22.40     1.54     41.89      .42
                   FRAGMENT  29.13                SIEVED  15.33ROCK PERCENT  2.45
                                                                      1
      11           36.90     31.08     27.64     23.15    15.38     1.36     48.68      .24
                   50.18     42.26     37.59     31.48    20.91     1.51     43.02      .36
                   FRAGMENT  29.18                SIEVED  16.02ROCK PERCENT 14.90


IDENTIFICATION       T E N S I O N S  (BARS)
                                                                  BD       TP        K
44   1   1   2     .1        .3        .6        3.       15.      G/CC     PCT     IN/HR

     DEPTH                                                            1
       0           31.73     28.04     23.12     19.56    13.73     1.38     47.92      .04
                   43.78     38.69     31.90     26.99    18.94     1.60     39.62      .09
                   FRAGMENT  26.87                SIEVED  13.45ROCK PERCENT  2.31
                                                                      1
       6           31.44     26.76     24.12     19.40    13.87     1.36     48.68      .64
                   42.75     36.39     32.80     26.38    18.86     1.50     43.40      .47
                   FRAGMENT  25.29                SIEVED  13.02ROCK PERCENT  1.16
                                                                      1
      11           39.23     32.07     28.29     21.91    13.50     1.31     50.57      .46
                   51.39     42.01     37.05     28.70    17.68     1.42     46.42      .69
                   FRAGMENT  31.19                SIEVED  13.09ROCK PERCENT  2.13

      1=FIST
      2=CORE
      3=LOOSE
```

COLBY SILT LOAM, severely eroded (44,01,C,a and b)

Location: Webster Co.; Pit a 0.27 mi. N and 75' E of SW cor. Sec. 5, T3N R9W; Pit b 0.28 mi. N and 15' E of SW cor. Sec. 5, T3N R9W.
Vegetation and land use: Cultivated, alfalfa
Topography: 12 percent upland slope
Drainage: Excessive surface
Parent Material: Peorian loess
Described and sampled by: H. E. Paden and G. A. Schumaker

Horizon	Description
Pit a	
Ap	0 to 5 inches. Grayish brown (2.5Y 5/2, dry) silt loam, very dark grayish brown (2.5Y 3/2) when moist; weak, very fine platy structure breaking to weak, very fine crumb structure; slightly hard, very friable; noncalcareous; abrupt smooth boundary.
Cca	5 to 36 inches. Light brownish gray (2.5Y 6/2, dry) silt loam, light olive brown (2.5Y 5/4) when moist; massive (structureless); slightly hard, very friable; calcareous, violent effervescence. Note: Reddish yellow (7.5YR 5/6, moist) mottlings in several places 5-10mm across extend from the surface vertically to 22 in. Cleavage planes of the Cca horizon are coated with calcium carbonate. Many soft to slightly hard lime concretions mostly oval but some pipe-like in the Cca horizon.
Pit b	
Ap	0 to 6 inches. Light brownish gray (2.5Y 6/2, dry) heavy silt loam, dark grayish brown (2.5Y 4/2) when moist; weak, very fine platy structure breaking to weak, very fine crumb structure; slightly hard, very friable; calcareous; abrupt smooth boundary.
Cca	6 to 36 inches. Light gray (2.5Y 7/2, dry) silt loam, light olive brown (2.5Y 5/3) when moist; massive (structureless); slightly hard, very friable; calcareous, violent effervescence. Note: Common, medium, prominent reddish brown (5YR 4/4, moist) mottlings in the Cca horizon. Calcium carbonate is oval or pipe-like and is soft to slightly hard. Some of the cleavage planes are coated with calcium carbonate.

COLBY SILT LOAM, severely eroded (44,01,C,a and b)

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     WEIGHT  PERCENT  AND  VOLUME  PERCENT  OF  WATER  RETAINED

IDENTIFICATION        T E N S I O N S  (BARS)
                                                                    BD        TP        K
44    1    2    1      .1        .3        .6        3.        15.        G/CC       PCT     IN/HR

     DEPTH                                                                  1
       0              34.39     29.41     25.47     21.69     15.53     1.44      45.66     .33
                      49.52     42.35     36.67     31.23     22.36     1.65      37.74     .39
                      FRAGMENT  27.44                SIEVED 14.94ROCK PERCENT    2.34
                                                                             1
       5              39.73     32.98     27.45     18.74     14.23     1.31      50.57     .43
                      52.04     43.20     35.95     24.54     18.64     1.39      47.55     .65
                      FRAGMENT  31.45                SIEVED 14.45ROCK PERCENT     .14


IDENTIFICATION        T E N S I O N S  (BARS)
                                                                    BD        TP        K
44    1    2    2      .1        .3        .6        3.        15.        G/CC       PCT     IN/HR

     DEPTH                                                                  1
       0              35.65     29.23     26.57     20.60     16.36     1.45      45.28     .40
                      51.69     42.38     38.52     29.87     23.72     1.60      39.62     .19
                      FRAGMENT  28.90                SIEVED 16.25ROCK PERCENT   14.82
                                                                             1
       6              38.47     30.62     27.52     17.68     13.33     1.38      47.92     .30
                      53.08     42.25     37.97     24.39     18.39     1.48      44.15     .22
                      FRAGMENT  29.28                SIEVED 13.13ROCK PERCENT    1.21


        1=FIST
        2=CORE
        3=LOOSE
```

HASTINGS SILT LOAM (44,05,P,a)

Location: Webster Co.; 0.15 mi. W and 180' S of NE cor. of NE¼ Sec. 1, T3N R10W.
Vegetation and land use: Native grasses
Topography: Nearly level
Drainage: Moderately well drained
Parent Material: Peorian loess
Described and sampled by: R. H. Jordan, J. V. Drew, G. A. Schumaker

Horizon	Description
A11	0 to 5 inches. Dark gray (10YR 4/1, dry) silt loam, black (10YR 2/1) when moist; moderate, fine granular structure; soft, friable; noncalcareous; roots abundant; clear smooth boundary.
A12	5 to 10 inches. Dark grayish brown (10YR 4/2, dry) heavy silt loam, very dark grayish brown (10YR 2/2) when moist; moderate, fine to medium granular structure; soft, friable; noncalcareous; roots abundant, occasional pea-size nests of insect casts less than 1mm in diameter; clear smooth boundary.
B1	10 to 16 inches. Dark grayish brown (10YR 4/2, dry) light silty clay loam, very dark grayish brown (10YR 3/2) when moist; weak, fine subangular blocky structure breaking to moderate, medium granular structure; soft, friable; noncalcareous; roots plentiful; occasional pea-size nests of insect casts less than 1mm in diameter; clear smooth boundary.
B2t	16 to 23 inches. Brown (10YR 5/3, dry) heavy silty clay loam, dark brown (10YR 3/3) when moist; 40% of ped faces are coated with dark gray (10YR 4/1, dry) to very dark gray (10YR 3/1, moist) coatings; weak to moderate, medium prismatic structure breaking to moderate, medium and fine subangular blocky structure; hard, firm; noncalcareous; roots numerous; gradual smooth boundary.
B3	23 to 31 inches. Pale brown (10YR 6/3, dry) silty clay loam, grayish brown (10YR 5/2) when moist; 30% of ped surfaces with dark gray (10YR 4/1, dry) to very dark gray (10YR 3/1, moist) coatings; weak, coarse prismatic structure breaking to moderate, medium and fine angular blocky structure; hard, firm; noncalcareous; few roots; abrupt smooth boundary.
	Note: A highly mottled zone occurred at 29 to 31 inches; very pale brown (10YR 6/3, moist) with many medium to fine distinct mottles of brownish yellow (10YR 6/8, moist); noncalcareous.
C1ca	31 to 40 inches. Very pale brown (10YR 7/3, dry) silt loam; brown (10YR 5/3) when moist; common fine distinct mottles of brownish yellow (10YR 6/8, moist); very weak, coarse prismatic structure; slightly hard, friable; few roots; calcareous; violent effervescence, carbonates occurring as soft to slightly hard segregates or concretions; gradual smooth boundary.
C2ca	40 to 50 inches. Very pale brown (10YR 7/3, dry) silt loam, brown (10YR 6/3) when moist; common, fine distinct mottles of brownish yellow (10YR 6/8, moist); massive (structureless); soft, friable; calcareous, strong effervescence, carbonates occurring as soft segregates fewer than horizon above; gradual smooth boundary.
	Note: Occasional dark coatings within tubular pores in loess. These coatings resemble clay films. A pocket about 5" in diam. contained an abundance of these tubular pores.
C3	50 to 60 inches. Very pale brown (10YR 7/3, dry) silt loam, pale brown (10YR 6/3) when moist; few, fine distinct mottles brownish yellow (10YR 6/8 moist); massive (structureless); soft, friable; calcareous, slight effervescence, occasional fine soft carbonate segregations.

HASTINGS SILT LOAM (44,05,P,a)

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     WEIGHT  PERCENT  AND  VOLUME  PERCENT  OF  WATER  RETAINED

IDENTIFICATION       T E N S I O N S  (BARS)
                                                                   BD        TP       K
44   5   1   1     .1        .3        .6        3.        15.      G/CC      PCT     IN/HR

     DEPTH                                                          1
      0           39.45     31.73     27.09     23.21     14.29     1.31     50.57     .26
                  51.67     41.56     35.48     30.40     18.71     1.42     46.42     .27
                  FRAGMENT  31.17                 SIEVED  12.07ROCK PERCENT
                                                                    1
      5           36.31     31.36     28.50     26.34     17.39     1.37     48.30     .48
                  49.74     42.96     39.04     36.08     23.82     1.65     37.74     .56
                  FRAGMENT  30.92                 SIEVED  18.93ROCK PERCENT   3.79
                                                                    1
     10           39.47     34.92     32.04     29.59     22.88     1.33     49.81     .52
                  52.49     46.44     42.61     39.35     30.43     1.68     36.60     .54
                  FRAGMENT  33.80                 SIEVED  19.15ROCK PERCENT
                                                                    1
     16           34.86     30.45     29.32     25.71     22.54     1.33     49.81     .01
                  46.36     40.49     38.99     34.19     29.97     1.61     39.25      0
                  FRAGMENT  30.85                 SIEVED  18.66ROCK PERCENT
                                                                    1
     23           37.70     27.22     25.83     22.42     17.89     1.46     44.91     .02
                  55.04     39.74     37.71     32.73     26.11     1.52     42.64     .07
                  FRAGMENT  28.63                 SIEVED  18.75ROCK PERCENT   1.55
                                                                    1
     31           38.28     27.97     24.13     19.83     15.71     1.27     52.08     .58
                  48.61     35.52     30.64     25.18     19.95     1.44     45.66     .62
                  FRAGMENT  28.01                 SIEVED  15.78ROCK PERCENT   3.64
                                                                    1
     40           36.27     28.43     22.88     17.94     13.33     1.34     49.43     .28
                  48.60     38.09     30.65     24.03     17.86     1.43     46.04     .49
                  FRAGMENT  27.41                 SIEVED  14.05ROCK PERCENT   6.42

      1=FIST
      2=CORE
      3=LOOSE
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HASTINGS SILT LOAM (44,05,P,b)

Location: Webster Co.;.13 mi. W and 150' S of NE cor. Sec. 1, T3N R10W.
Vegetation and land use: Native grasses
Topography: Nearly level
Drainage: Moderately well drained
Parent Material: Peorian loess
Described and sampled by: H. E. Paden and G. A. Schumaker

Horizon	Description
A11	0 to 5 inches. Dark gray (10YR 4/1, dry) silt loam, black (10YR 2/1) when moist; moderate, fine granular structure; soft, very friable; noncalcareous; clear smooth boundary.
A12	5 to 11 inches. Dark grayish brown (10YR 4/2, dry) silt loam, very dark grayish brown (10YR 2/2) when moist; moderate, fine and medium granular structure; slightly hard, very friable; noncalcareous; clear smooth boundary.
B1	11 to 17 inches. Dark grayish brown (10YR 4/2, dry) light silty clay loam, very dark grayish brown (10YR 3/2) when moist; weak, fine subangular blocky structure breaking to moderate, medium granular structure; slightly hard, friable; noncalcareous; clear smooth boundary.
B2t	17 to 24 inches. Brown (10YR 5/3, dry) heavy silty clay loam, dark brown (10YR 3/3) when moist; 40% of cleavage planes have dark gray (10YR 4/1, dry) to very dark gray (10YR 3/1) when moist organic coatings; weak, moderate prismatic structure breaking to moderate, medium and fine subangular blocky structure; hard, firm; noncalcareous; gradual smooth boundary.
B3	24 to 26 inches. Pale brown (10YR 6/3, dry) silty clay loam, grayish brown (10YR 5/2) when moist; organic coatings on 30% of cleavage planes, dark gray (10YR 4/1, dry) to very dark gray (10YR 3/1, moist); weak, coarse prismatic structure breaking to moderate, medium and fine angular blocky structure; hard, firm; noncalcareous.

HASTINGS SILT LOAM (44,05,P,b)

WEIGHT PERCENT AND VOLUME PERCENT OF WATER RETAINED

IDENTIFICATION	TENSIONS (BARS)					BD	TP	K
44 5 1 2	.1	.3	.6	3.	15.	G/CC	PCT	IN/HR
DEPTH						1		
0	37.07	30.76	26.66	22.52	15.05	1.19	55.09	.52
	44.11	36.60	31.72	26.79	17.90	1.33	49.81	1.18
	FRAGMENT	30.23		SIEVED	13.17ROCK	PERCENT		
						1		
5	32.58	28.82	27.16	24.16	19.07	1.23	53.58	.65
	40.07	35.44	33.40	29.71	23.45	1.39	47.55	.73
	FRAGMENT	28.13		SIEVED	15.47ROCK	PERCENT		
						1		
11	33.33	30.71	27.38	26.02	22.11	1.35	49.06	.15
	44.99	41.45	36.96	35.12	29.84	1.69	36.23	.25
	FRAGMENT	29.42		SIEVED	20.02ROCK	PERCENT		
						1		
17	36.52	29.10	28.03	26.77	22.71	1.30	50.94	0
	47.47	37.83	36.43	34.80	29.52	1.57	40.75	
	FRAGMENT	30.08		SIEVED	19.95ROCK	PERCENT		

1=FIST
2=CORE
3=LOOSE

HASTINGS SILT LOAM (44,05,C,a)

Location: Webster Co.; 0.15 mi. W and 235' N of SE cor. of Sec. 36, T4N R10W.
Vegetation and land use: Cultivated (alfalfa)
Topography: 2 percent upland slope
Drainage: Moderately well drained
Parent Material: Peorian loess
Described and sampled by: H. E. Paden and G. A. Schumaker

Horizon	Description
Ap	0 to 5 inches. Dark grayish brown (10YR 4/2, dry) silt loam, very dark brown (10YR 2/2) when moist; weak, very fine platy structure breaking to weak, very fine crumb structure; slightly hard, very friable; noncalcareous; abrupt wavy boundary.
B1	5 to 11 inches. Grayish brown (10YR 5/2, dry) coarse silty clay loam, very dark grayish brown (10YR 3/2) when moist; moderate, very fine subangular blocky structure; slightly hard, very friable; noncalcareous; clear smooth boundary.
B2t	11 to 21 inches. Brown (10YR 5/3, dry) fine silty clay loam, dark brown (10YR 3/3) when moist; weak to moderate, medium prismatic structure breaking to moderate, fine and medium angular blocky structure; hard, firm; noncalcareous; clear smooth boundary.
B3	21 to 28 inches. Pale brown (10YR 6/3, dry) silty clay loam, brown (10YR 4/3) when moist; moderate, medium prismatic structure breaking to moderate, medium angular blocky structure; hard, firm; noncalcareous; gradual smooth boundary.
C1	28 to 36 inches. Light yellowish brown (2.5Y 6/3, dry) silt loam, olive brown (2.5Y 4/3) when moist; moderate, coarse prismatic structure; slightly hard, very friable; noncalcareous; common, fine distinct strong brown (7.5YR 5/8, moist) mottlings; abrupt wavy boundary.
C2ca	36 to 60 inches. Light yellowish brown (2.5Y 6/3, dry) silt loam, olive brown (2.5Y 4/3) when moist; massive (structureless); slightly hard, very friable; calcareous, violent effervescence; calcium carbonate as concretions 2-5mm in diameter; matrix is not calcareous; common, medium distinct strong brown mottlings.

HASTINGS SILT LOAM (44,05,C,a)

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     WEIGHT  PERCENT  AND  VOLUME  PERCENT  OF  WATER  RETAINED

IDENTIFICATION        T E N S I O N S  (BARS)
                                                                 BD        TP        K
44    5    2    1     .1        .3        .6        3.       15.       G/CC      PCT      IN/HR

     DEPTH                                                           1
      0              44.49     23.76     20.72     18.27     13.18     1.23      53.58      .78
                     54.72     29.22     25.48     22.47     16.21     1.29      51.32      .16
                     FRAGMENT  24.75               SIEVED  13.06ROCK  PERCENT   2.77
                                                                         1
      5              50.26     25.79     24.11     22.27     17.65     1.30      50.94      .42
                     65.33     33.52     31.34     28.95     22.94     1.42      46.42      .90
                     FRAGMENT  24.97               SIEVED  15.14ROCK  PERCENT
                                                                         1
     11              47.70     25.59     23.37     21.42     17.37     1.48      44.15      .36
                     70.59     37.87     34.58     31.70     25.70     1.57      40.75      .34
                     FRAGMENT  25.71               SIEVED  15.80ROCK  PERCENT
                                                                         1
     21              45.31     25.88     22.40     21.69     18.77     1.37      48.30      0
                     62.07     35.45     30.68     29.71     25.71     1.57      40.75
                     FRAGMENT  26.56               SIEVED  16.32ROCK  PERCENT
                                                                         1
     28              47.59     25.12     21.29     19.92     15.89     1.31      50.57      .23
                     62.34     32.90     27.88     26.09     20.81     1.43      46.04      .13
                     FRAGMENT  25.95               SIEVED  17.25ROCK  PERCENT   3.27
                                                                         1
     36              45.07     25.48     22.41     17.30     14.32     1.31      50.57      .33
                     59.04     33.37     29.35     22.66     18.75     1.44      45.66      .25
                     FRAGMENT  24.25               SIEVED  13.96ROCK  PERCENT    .58

     1=FIST
     2=CORE
     3=LOOSE
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HASTINGS SILTY CLAY LOAM (44,05,C,b)

Location: Webster Co.; 0.1 mi. W and 200' N of SE cor. Sec. 36, T4N R10W.
Vegetation and land use: Cultivated (Milo stubble)
Topography: 2 percent upland slope
Drainage: Moderately well drained
Parent Material: Peorian loess
Described and sampled by: H. E. Paden and G. A. Schumaker

Horizon	Description
Ap	0 to 5 inches. Dark brown (10YR 3/3, moist) silty clay loam; moderate, medium subangular blocky structure breaking to moderate very fine crumb structure; hard, friable; noncalcareous; abrupt wavy boundary.
B2t	5 to 11 inches. Dark brown (10YR 3/3, moist) silty clay; moderate, fine and medium angular blocky structure breaking to moderate very fine angular blocky structure; very hard, firm; noncalcareous; clear smooth boundary.
B3	11 to 17 inches. Brown (10YR 4/3, moist) silty clay loam; moderate, medium prismatic structure breaking to moderate, medium angular blocky structure; hard, friable; noncalcareous; abrupt wavy boundary.
Cca	17 to 48 inches. Olive brown (2.5Y 4/4, moist) silt loam; massive (structureless); slightly hard, very friable; calcareous; calcium carbonate concretions 2-5mm in diameter.

Note: Cleavage planes in the B2t and B3 horizons are coated with dark organic stainings. Reddish iron mottlings are common, medium and prominent in the Cca horizon. A few soft iron segregations or concretions in the Cca horizon.

HASTINGS SILTY CLAY LOAM (44,05,C,b)

WEIGHT PERCENT AND VOLUME PERCENT OF WATER RETAINED

IDENTIFICATION	TENSIONS (BARS)					BD	TP	K
44 5 2 2	.1	.3	.6	3.	15.	G/CC	PCT	IN/HR
DEPTH						1		
0	45.45	29.75	27.19	23.66	16.67	1.27	52.08	.32
	57.72	37.78	34.53	30.04	21.17	1.34	49.43	1.47
	FRAGMENT	27.55		SIEVED	14.35ROCK	PERCENT		
						1		
5	55.83	31.68	29.80	27.67	23.28	1.28	51.70	.17
	71.46	40.55	38.14	35.41	29.79	1.50	43.40	.27
	FRAGMENT	29.23		SIEVED	19.68ROCK	PERCENT		
						1		
11	51.56	31.08	27.99	25.11	21.05	1.44	45.66	.05
	74.24	44.75	40.30	36.15	30.31	1.56	41.13	.06
	FRAGMENT	29.10		SIEVED	18.02ROCK	PERCENT	2.40	
						1		
17	43.11	27.15	22.39	17.33	14.77	1.31	50.57	.34
	56.47	35.56	29.33	22.70	19.34	1.42	46.42	.68
	FRAGMENT	25.81		SIEVED	14.21ROCK	PERCENT	4.40	

1=FIST
2=CORE
3=LOOSE

HOLDREGE SILT LOAM (44,06,P,a)

Location: Webster Co.; 0.27 mi. N and 190' W of SE cor. Sec. 31, T4N R9W.
Vegetation and land use: Native grasses
Topography: 4 percent upland slope
Drainage: Well drained
Parent Material: Peorian loess
Described and sampled by: H. E. Paden and G. A. Schumaker

Horizon	Description
A11	0 to 6 inches. Gray (10YR 5/1, dry) silt loam, very dark gray (10YR 3/1) when moist; weak, fine and medium, granular structure; soft, very friable; noncalcareous; clear smooth boundary.
A12	6 to 12 inches. Gray (10YR 5/1, dry) silt loam, very dark gray (10YR 3/1) when moist; moderate, medium granular structure; soft, very friable; noncalcareous; clear, smooth boundary.
B2t	12 to 20 inches. Brown (10YR 5/3, dry) silty clay loam, dark brown (10YR 3/3) when moist; moderate fine subangular blocky structure; hard, firm; noncalcareous; clear smooth boundary. Note: Few, fine distinct reddish yellow (7.5YR 6/8, moist) mottles.
B3	20 to 30 inches. Light brownish gray (2.5Y 6/2) silty clay loam, dark grayish brown (2.5Y 4/2) when moist; weak, coarse prismatic structure breaking to moderate medium subangular blocky structure; hard, firm; noncalcareous; few, medium, prominent iron stains; gradual smooth boundary.
C1	30 to 39 inches. Light gray (5Y 7/2, dry) silt loam, olive gray (5Y 5/2) when moist; massive (structureless); soft, very friable; noncalcareous; common medium and coarse iron stains; gradual wavy boundary.
C2ca	39 to 60 inches. Light gray (5Y 7/2, dry) silt loam, olive gray (5Y 5/2) when moist; massive (structureless); soft, very friable; calcareous; violent effervescence. Soft to slightly hard calcium carbonate concretions 2-5mm in diameter. Many, medium and coarse, prominent iron stains.

HASTINGS, NEBRASKA

HOLDREGE SILT LOAM (44,06,P,a)

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     WEIGHT  PERCENT  AND  VOLUME  PERCENT  OF  WATER  RETAINED

IDENTIFICATION        T E N S I O N S  (BARS)
                                                                BD        TP       K
44    6   1    1     .1        .3        .6        3.       15.       G/CC      PCT    IN/HR

     DEPTH                                                               1
      0              57.53     32.95     28.99     24.29     16.53     1.18     55.47    1.58
                     67.88     38.88     34.20     28.66     19.50     1.33     49.81    1.36
                     FRAGMENT  30.44                SIEVED  17.24ROCK PERCENT  2.32
                                                                         1
      6              60.34     30.76     27.66     25.80     20.39     1.18     55.47    .55
                     71.20     36.29     32.63     30.44     24.06     1.31     50.57    .78
                     FRAGMENT  29.85                SIEVED  21.11ROCK PERCENT  4.89
                                                                         1
     12              56.93     29.89     27.88     25.13     20.80     1.24     53.21    .32
                     70.59     37.06     34.57     31.16     25.79     1.45     45.28    .12
                     FRAGMENT  29.84                SIEVED  21.16ROCK PERCENT   .38
                                                                         1
     20              47.94     27.75     26.06     23.07     17.24     1.36     48.68    .10
                     65.19     37.74     35.44     31.37     23.44     1.55     41.51    .21
                     FRAGMENT  26.85                SIEVED  15.53ROCK PERCENT
                                                                         1
     30              35.23     30.76     25.54     18.94     13.92     1.37     48.30    .33
                     48.26     42.14     34.98     25.94     19.07     1.50     43.40    .37
                     FRAGMENT  29.28                SIEVED  13.20ROCK PERCENT
                                                                         1
     39              40.31     34.31     27.42     16.88     13.65     1.27     52.08    .84
                     51.19     43.57     34.82     21.43     17.33     1.37     48.30    1.05
                     FRAGMENT  33.04                SIEVED  13.33ROCK PERCENT  1.15

    1=FIST
    2=CORE
    3=LOOSE
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HOLDREGE SILTY CLAY LOAM (44,06,C,a)

Location: Webster Co.; 118' W of pit 44,06,P,a in Sec. 31, T4N R9W.
Vegetation and land use: Cultivated (wheat)
Topography: 4 percent upland slope
Drainage: Well drained
Parent Material: Peorian loess
Described and sampled by: H. E. Paden and G. A. Schumaker

Horizon	Description
Ap	0 to 7 inches. Grayish brown (10YR 5/2, dry) silty clay loam, very dark grayish brown (10YR 3/2) when moist; weak, very fine crumb structure; slightly hard, friable; noncalcareous; abrupt smooth boundary.
B2t	7 to 13 inches. Light brownish gray (2.5Y 6/2, dry) silty clay loam, dark grayish brown (2.5Y 4/2) when moist; moderate, medium prismatic structure breaking to moderate, fine subangular blocky structure; hard, firm; noncalcareous; few, fine, prominent, reddish iron mottlings; clear smooth boundary.
B3	13 to 19 inches. Light gray (2.5Y 7/2, dry) silt loam, grayish brown (2.5Y 5/2) when moist; weak, medium prismatic structure separating to weak, medium subangular blocky structure; slightly hard, friable; noncalcareous; few, soft iron concretions; common, coarse, prominent reddish iron mottlings; gradual wavy boundary.
C1	19 to 30 inches. Pale yellow (5Y 7/3, dry) silt loam, olive (5Y 5/3) when moist; massive (structureless); slightly hard, very friable; noncalcareous; common medium, prominent iron mottlings; few iron concretions; abrupt wavy boundary.
C2ca	30 to 60 inches. Pale yellow (5Y 7/3, dry) silt loam, olive (5Y 5/3) when moist; massive (structureless); slightly hard, very friable; calcareous; violent effervescence; few pipe-like calcium carbonate concretions about 5mm in diameter; common, medium prominent reddish mottlings.

HOLDREGE SILTY CLAY LOAM (44,06,C,a)

WEIGHT PERCENT AND VOLUME PERCENT OF WATER RETAINED

IDENTIFICATION	TENSIONS (BARS)					BD	TP	K
44 6 2 1	.1	.3	.6	3.	15.	G/CC	PCT	IN/HR
DEPTH						1		
0	33.51	30.84	29.36	22.28	18.18	1.41	46.79	.21
	47.24	43.48	41.39	31.41	25.63	1.58	40.38	.04
	FRAGMENT	29.20		SIEVED	16.66ROCK	PERCENT	3.51	
						1		
7	29.99	27.15	25.59	21.49	18.48	1.44	45.66	.35
	43.18	39.09	36.84	30.94	26.61	1.69	36.23	.50
	FRAGMENT	26.23		SIEVED	18.58ROCK	PERCENT	.94	
						1		
13	31.83	28.51	26.06	21.18	15.91	1.46	44.91	.32
	46.47	41.62	38.04	30.92	23.22	1.66	37.36	.24
	FRAGMENT	27.89		SIEVED	16.02ROCK	PERCENT	16.51	
						1		
19	34.89	31.30	25.84	19.18	14.16	1.30	50.94	.74
	45.35	40.69	33.59	24.93	18.40	1.43	46.04	.72
	FRAGMENT	32.98		SIEVED	17.51ROCK	PERCENT	16.46	
						1		
30	41.89	34.61	26.12	15.90	12.39	1.17	55.85	.50
	49.01	40.49	30.56	18.60	14.49	1.26	52.45	.46
	FRAGMENT	33.38		SIEVED	14.64ROCK	PERCENT	3.25	

1=FIST
2=CORE
3=LOOSE

HOLDREGE SILTY CLAY LOAM (44,06,C,b)

Location: Webster Co.; 0.21 mi. S, 75' E of NW cor. Sec. 5, T3N R9W.
Vegetation and land use: Reseeded native grasses
Topography: 5 percent upland slope
Drainage: Well drained
Parent Material: Peorian loess
Described and sampled by: H. E. Paden and G. A. Schumaker

Horizon	Description
Ap	0 to 5 inches. Very dark grayish brown (10YR 3/2, moist) silty clay loam; moderate fine granular structure; slightly hard, friable; noncalcareous; abrupt smooth boundary.
B2t	5 to 14 inches. Dark grayish brown (10YR 4/2, moist) silty clay loam; moderate, medium prismatic structure breaking to moderate fine subangular blocky structure; hard, firm; noncalcareous; clear smooth boundary.
B3	14 to 21 inches. Dark grayish brown (10YR 4/2, moist) silty clay loam; moderate, medium prismatic structure separating to moderate, medium subangular blocky structure; hard, friable; noncalcareous; clear smooth boundary.
C1	21 to 26 inches. Pale brown (10YR 6/3, moist) silt loam; massive(structureless); slightly hard, very friable; noncalcareous; many, medium to fine prominent mottles of brownish yellow (10YR 6/8, moist).
C2ca	26 to 42 inches. Pale brown (10YR 6/3), moist) silt loam; massive (structureless); slightly hard, very friable; calcareous; violent effervescence, carbonates are segregates or concretions; common, fine distinct mottles brownish yellow (10YR 6/8, moist).

HOLDREGE SILTY CLAY LOAM (44,06,C,b)

WEIGHT PERCENT AND VOLUME PERCENT OF WATER RETAINED

IDENTIFICATION	TENSIONS (BARS)							
						BD	TP	K
44 6 2 2	.1	.3	.6	3.	15.	G/CC	PCT	IN/HR
DEPTH						1		
0	35.29	32.09	29.35	23.55	16.92	1.41	46.79	.47
	49.75	45.24	41.38	33.20	23.85	1.58	40.38	.32
	FRAGMENT	32.97		SIEVED	15.89ROCK	PERCENT	.37	
						1		
5	38.94	33.97	31.99	26.45	21.18	1.35	49.06	.34
	52.56	45.85	43.18	35.70	28.59	1.74	34.34	.26
	FRAGMENT	31.93		SIEVED	22.22ROCK	PERCENT	.25	
						1		
14	35.57	32.19	30.04	25.00	20.95	1.32	50.19	.49
	46.95	42.49	39.65	33.00	27.65	1.65	37.74	1.14
	FRAGMENT	30.32		SIEVED	18.51ROCK	PERCENT		
						1		
21	37.27	30.22	25.00	18.93	15.04	1.28	51.70	.33
	47.70	38.68	32.00	24.23	19.25	1.41	46.79	.49
	FRAGMENT	29.89		SIEVED	14.28ROCK	PERCENT		

1=FIST
2=CORE
3=LOOSE

HOLDREGE SILT LOAM (44,06,C,c)

Location: Webster Co.; 0.23 mi. S and 35' E of NW cor. Sec. 5, T3N R9W.
Vegetation and land use: Reseeded native grasses
Topography: 4 percent upland slope
Drainage: Well drained
Parent Material: Peorian loess
Described and sampled by: H. E. Paden and G. A. Schumaker

Horizon	Description
Ap	0 to 5 inches. Very dark brown (10YR 2/2, moist) silt loam; weak, fine granular structure; slightly hard, very friable; noncalcareous; abrupt smooth boundary.
B2t	5 to 17 inches. Very dark grayish brown (10YR 3/2, moist) silty clay loam; moderate, very fine subangular blocky structure; hard, firm; noncalcareous; clear smooth boundary.
B3	17 to 25 inches. Dark grayish brown (2.5Y 4/2, moist) silty clay loam; moderate, medium prismatic structure breaking to weak medium subangular blocky structure; slightly hard, friable; noncalcareous; clear smooth boundary.
C1	25 to 31 inches. Olive brown (2.5Y 4/3, moist) silt loam; massive (structureless); slightly hard, very friable; noncalcareous; many, medium prominent yellowish brown (10YR 5/8, moist) mottlings; clear smooth boundary.
C2ca	31 to 42 inches. Olive brown (2.5Y 4/3, moist) silt loam; massive (structureless); slightly hard, very friable; calcareous; few, fine distinct yellowish brown (10YR 5/8, moist) mottlings; calcium carbonate is slightly hard segregations or concretions.

HOLDREGE SILT LOAM (44,06,C,c)

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      WEIGHT  PERCENT  AND  VOLUME  PERCENT  OF  WATER  RETAINED

IDENTIFICATION       T E N S I O N S  (BARS)
                                                                BD       TP       K
44   6   2   3    .1       .3       .6       3.       15.     G/CC     PCT     IN/HR

    DEPTH                                                        1
     0           30.03    27.09    25.00    20.48    12.84    1.47    44.53      .09
                 44.14    39.82    36.75    30.10    18.87    1.57    40.75      .08
                 FRAGMENT 26.51             SIEVED 10.72ROCK PERCENT
                                                                 1
     5           40.95    35.78    33.48    27.86    22.40    1.32    50.19     1.00
                 54.05    47.22    44.19    36.77    29.56    1.74    34.34      .84
                 FRAGMENT 33.87             SIEVED 22.99ROCK PERCENT   .33
                                                                 1
    17           33.33    30.35    28.57    24.34    21.58    1.44    45.66      .28
                 47.99    43.70    41.14    35.04    31.07    1.62    38.87      .40
                 FRAGMENT 29.37             SIEVED 21.42ROCK PERCENT   .82
                                                                 1
    25           37.76    31.55    26.49    18.60    13.00    1.33    49.81      .83
                 50.22    41.96    35.23    24.73    17.29    1.46    44.91      .62
                 FRAGMENT 30.03             SIEVED 15.21ROCK PERCENT  2.44

      1=FIST
      2=CORE
      3=LOOSE
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HOBBS SILT LOAM (44,08,P,a and b)

Location: Webster Co.; Pit a 0.5 mi. W, 0.24 mi. S and 225' W of NE cor. Sec. 18, T3N R9W;
Pit b 0.5 mi. W, 0.24 mi. S and 175' W of NE cor. Sec. 18, T3N R9W.
Vegetation and land use: Native grasses
Topography: Nearly level
Drainage: Occasionally flooded
Parent Material: Alluvium
Described and sampled by: H. E. Paden and G. A. Schumaker

Horizon	Description
Pit a	
A11	0 to 7 inches. Very dark grayish brown (10YR 3/2, moist) silt loam; weak, very fine granular structure; slightly hard, very friable; noncalcareous; clear smooth boundary.
A12	7 to 19 inches. Very dark brown (10YR 2/2, moist) silt loam; weak, fine granular structure; slightly hard, very friable; noncalcareous; abrupt smooth boundary.
A1b	19 to 36 inches. Black (10YR 2/1, moist) silt loam; moderate, fine and medium granular structure; slightly hard, very friable; noncalcareous.
Pit b	
A11	0 to 4 inches. Very dark grayish brown (10YR 3/2, moist) silt loam; weak, fine platy structure breaking to weak, very fine crumb structure; slightly hard, very friable; noncalcareous; clear smooth boundary.
A12	4 to 15 inches. Very dark brown (10YR 2/2, moist) silt loam; weak fine granular structure; slightly hard, very friable; noncalcareous; clear smooth boundary.
A1b	15 to 30 inches. Very dark brown (10YR 2/2, moist) silt loam; moderate fine granular structure; slightly hard, very friable; noncalcareous.

HOBBS SILT LOAM (44,08,P,a and b)

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     WEIGHT  PERCENT  AND  VOLUME  PERCENT  OF  WATER  RETAINED

IDENTIFICATION        T E N S I O N S  (BARS)
                                                                  BD       TP       K
44   8   1   1    .1        .3        .6        3.        15.     G/CC     PCT    IN/HR

     DEPTH                                                           1
      0          32.65     27.16     22.11     16.47     10.25     1.44    45.66     .22
                 47.01     39.11     31.83     23.71     14.76     1.47    44.53     .40
                 FRAGMENT  26.19                 SIEVED 11.29ROCK PERCENT    .64
                                                                     1
      7          35.96     25.00     19.32     13.72      9.81     1.29    51.32     .63
                 46.38     32.25     24.92     17.69     12.65     1.28    51.70     .91
                 FRAGMENT  24.81                 SIEVED  9.36ROCK PERCENT
                                                                     1
     19          33.61     23.31     19.55     14.63     11.15     1.28    51.70    1.00
                 43.02     29.83     25.02     18.72     14.27     1.38    47.92    1.25
                 FRAGMENT  23.34                 SIEVED 10.42ROCK PERCENT


IDENTIFICATION        T E N S I O N S  (BARS)
                                                                  BD       TP       K
44   8   1   2    .1        .3        .6        3.        15.     G/CC     PCT    IN/HR

     DEPTH                                                           1
      0          31.62     26.92     22.35     17.25      6.63     1.36    48.68     .11
                 43.00     36.61     30.39     23.46      9.01     1.52    42.64     .64
                 FRAGMENT  26.65                 SIEVED 10.46ROCK PERCENT
                                                                     1
      4          33.33     22.64     17.73     13.06      8.55     1.35    49.06     .95
                 44.99     30.56     23.93     17.63     11.54     1.43    46.04    1.13
                 FRAGMENT  22.77                 SIEVED  9.70ROCK PERCENT
                                                                     1
     15          33.33     24.38     16.49     14.28     11.53     1.27    52.08    1.40
                 42.32     30.96     20.94     18.13     14.64     1.35    49.06    2.64
                 FRAGMENT  24.63                 SIEVED  9.70ROCK PERCENT


        1=FIST
        2=CORE
        3=LOOSE
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HOBBS SILT LOAM (44,08,C,a and b)

Location: Webster Co.; Pit a 0.5 mi. W and 0.12 mi. S and 25' E of NE cor. Sec. 7, T3N R9W; Pit b 0.5 mi. W, 0.10 mi. S and 50' E of NE cor. Sec. 7, T3N R9W.
Vegetation and land use: Cultivated (milo stubble)
Topography: Nearly level
Drainage: Occasionally flooded
Parent Material: Alluvium
Described and sampled by: H. E. Paden and G. A. Schumaker

Horizon	Description
Pit a	
Ap	0 to 4 inches. Dark brown (10YR 3/3, moist) silt loam; weak, fine crumb structure; soft, very friable; noncalcareous; abrupt smooth boundary.
A11	4 to 25 inches. Very dark grayish brown (10YR 3/2, moist) silt loam; weak, very coarse granular structure; soft, very friable; noncalcareous; clear smooth boundary.
A12	25 to 50 inches. Very dark brown (10YR 2/2, moist) silt loam; weak fine granular structure; soft, very friable; noncalcareous; abrupt smooth boundary.
A1b	50 to 60 inches. Black (10YR 2/1, moist) silt loam; weak, very fine crumb structure; soft, very friable; noncalcareous.
Pit b	
Ap	0 to 5 inches. Light brownish gray (10YR 6/2, dry) silt loam, dark grayish brown (10YR 4/2) when moist; weak, very fine crumb structure; slightly hard, very friable; noncalcareous; abrupt smooth boundary.
A11	5 to 17 inches. Pale brown (10YR 6/3, dry) silt loam, brown (10YR 4/3) when moist; weak, very fine crumb structure; slightly hard, very friable; noncalcareous; gradual smooth boundary.
A12	17 to 29 inches. Grayish brown (10YR 5/2, dry) silt loam; very dark grayish brown (10YR 3/2) when moist; weak, fine granular structure; slightly hard, very friable; noncalcareous; abrupt wavy boundary.
A1b	29 to 46 inches. Dark gray (10YR 4/1, dry) silt loam, black (10YR 2/1) when moist; weak fine granular structure; slightly hard, very friable; noncalcareous.

HOBBS SILT LOAM (44,08,C,a and b)

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     WEIGHT  PERCENT  AND  VOLUME  PERCENT  OF  WATER  RETAINED

IDENTIFICATION        T E N S I O N S  (BARS)
                                                                  BD       TP       K
44   8   2   1     .1        .3        .6        3.        15.      G/CC     PCT     IN/HR

    DEPTH                                                           1
     0             32.79     27.24     24.04     19.55     10.68     1.37     48.30     .22
                   44.92     37.31     32.93     26.78     14.63     1.48     44.15     .04
                   FRAGMENT  27.32                 SIEVED  10.44ROCK  PERCENT
                                                                      1
     4             31.14     23.85     22.39     15.51      8.44     1.40     47.17     .55
                   43.59     33.39     31.34     21.71     11.81     1.44     45.66     .47
                   FRAGMENT  23.21                 SIEVED   8.72ROCK  PERCENT
                                                                      1
    25             35.67     28.39     26.76     16.36     10.81     1.25     52.83     .72
                   44.58     35.48     33.45     20.45     13.51     1.30     50.94    2.34
                   FRAGMENT  26.54                 SIEVED  11.88ROCK  PERCENT   .21
                                                                      1
    50             31.25     30.96     26.94     20.88     15.11     1.21     54.34     .66
                   37.81     37.46     32.59     25.26     18.28     1.22     53.96     .66
                   FRAGMENT  29.87                 SIEVED  16.25ROCK  PERCENT   .22


IDENTIFICATION        T E N S I O N S  (BARS)
                                                                  BD       TP       K
44   8   2   2     .1        .3        .6        3.        15.      G/CC     PCT     IN/HR

    DEPTH                                                           1
     0             33.96     27.52     22.56     17.17     11.43     1.37     48.30     .37
                   46.52     37.70     30.90     23.52     15.65     1.47     44.53     .35
                   FRAGMENT  26.59                 SIEVED  10.91ROCK  PERCENT   .54
                                                                      1
     5             32.24     25.59     23.38     17.16     11.00     1.40     47.17     .16
                   45.13     35.82     32.73     24.02     15.40     1.47     44.53     .14
                   FRAGMENT  25.64                 SIEVED  12.55ROCK  PERCENT   .71
                                                                      1
    17             30.69     25.52     22.78     20.29     10.52     1.41     46.79     .36
                   43.27     35.98     32.11     28.60     14.83     1.58     40.38     .34
                   FRAGMENT  25.39                 SIEVED  10.08ROCK  PERCENT
                                                                      1
    29             32.25     28.86     25.68     22.11     15.75     1.34     49.43      0
                   43.21     38.67     34.41     29.62     21.10     1.50     43.40     .02
                   FRAGMENT  27.99                 SIEVED  16.13ROCK  PERCENT

      1=FIST
      2=CORE
      3=LOOSE
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NUCKOLLS*SILT LOAM (44,09,P,a and b)

Location: Webster Co.: Pit a 0.13 mi. N and 650' E of SE cor. of SW¼ Sec. 31, T4N R9W;
Pit b 0.15 mi. N and 650' E of SE cor. of SW¼ Sec. 31, T4N R9W.
Vegetation and land use: Native grasses
Topography: 4 percent upland slope
Drainage: Well drained
Parent Material: Loveland loess
Described and sampled by: H. E. Paden and G. A. Schumaker

Horizon	Description
Pit a	
A1	0 to 8 inches. Very dark brown (10YR 2/2, moist) silt loam; moderate fine granular structure; slightly hard, very friable; noncalcareous; clear smooth boundary.
B1	8 to 12 inches. Dark brown (7.5YR 3/2, moist) silty clay loam; weak, very fine subangular blocky structure; hard, friable; noncalcareous; clear smooth boundary.
B2t	12 to 20 inches. Dark brown (7.5YR 4/3, moist) silty clay loam; strong, fine angular blocky structure; continuous clay films; hard, firm; noncalcareous; clear smooth boundary.
B3	20 to 26 inches. Dark brown (7.5YR 4/4, moist) silty clay loam; moderate, fine prismatic structure breaking to moderate fine subangular blocky structure; hard, friable; noncalcareous.
Pit b	
A1	0 to 10 inches. Very dark brown (10YR 2/2, moist) silt loam; moderate fine granular structure; slightly hard, very friable; noncalcareous; clear smooth boundary.
B1	10 to 14 inches. Very dark grayish brown (10YR 3/2, moist) silt loam; moderate, very fine subangular blocky structure; slightly hard, very friable; noncalcareous; clear smooth boundary.
B2t	14 to 21 inches. Dark brown (7.5YR 4/2, moist) silty clay loam; strong, fine, angular blocky structure; hard, friable; noncalcareous; clear smooth boundary.
B3	21 to 28 inches. Dark brown (7.5YR 4/3, moist) silty clay loam; moderate, medium prismatic structure breaking to moderate medium angular blocky structure; hard, friable; noncalcareous.

*Recorrelated Geary silt loam (1966).

NUCKOLLS SILT LOAM (44,09,P,a and b)

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      WEIGHT  PERCENT  AND  VOLUME  PERCENT  OF  WATER  RETAINED

IDENTIFICATION         T E N S I O N S  (BARS)
                                                                BD      TP       K
44   9   1   1     .1       .3       .6       3.       15.     G/CC    PCT    IN/HR

     DEPTH                                                        1
      0            34.50    29.32    25.69    16.93    14.22    1.34    49.43    .63
                   46.23    39.28    34.42    22.68    19.05    1.45    45.28    .58
                   FRAGMENT 27.84              SIEVED 12.28ROCK PERCENT
                                                                  1
      8            33.49    28.71    25.86    22.26    15.83    1.32    50.19    .43
                   44.20    37.89    34.13    29.38    20.89    1.50    43.40    .71
                   FRAGMENT 26.31              SIEVED 14.28ROCK PERCENT
                                                                  1
     12            28.74    25.63    23.16    20.37    15.57    1.48    44.15    .64
                   42.53    37.93    34.27    30.14    23.04    1.69    36.23    .80
                   FRAGMENT 25.34              SIEVED 14.85ROCK PERCENT
                                                                  1
     20            24.33    22.60    21.11    17.97    14.49    1.56    41.13    .14
                   37.95    35.25    32.93    28.03    22.60    1.80    32.08    .05
                   FRAGMENT 21.68              SIEVED 14.07ROCK PERCENT


IDENTIFICATION         T E N S I O N S  (BARS)
                                                                BD      TP       K
44   9   1   2     .1       .3       .6       3.       15.     G/CC    PCT    IN/HR

     DEPTH                                                        1
      0            35.93    27.35    23.48    18.83    14.15    1.31    50.57    .92
                   47.06    35.82    30.75    24.66    18.53    1.42    46.42   1.41
                   FRAGMENT 25.56              SIEVED 11.78ROCK PERCENT
                                                                  1
     10            30.94    26.89    25.68    21.95    15.67    1.30    50.94    .90
                   40.22    34.95    33.38    28.53    20.37    1.49    43.77   1.01
                   FRAGMENT 27.10              SIEVED 15.19ROCK PERCENT
                                                                  1
     14            30.25    26.12    24.37    22.10    16.79    1.43    46.04    .32
                   43.25    37.35    34.84    31.60    24.00    1.68    36.60    .72
                   FRAGMENT 24.32              SIEVED 15.51ROCK PERCENT
                                                                  1
     21            23.85    20.87    19.92    18.75    14.55    1.52    42.64    .27
                   36.25    31.72    30.27    28.50    22.11    1.77    33.21    .06
                   FRAGMENT 20.28              SIEVED 13.97ROCK PERCENT

      1=FIST
      2=CORE
      3=LOOSE
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NUCKOLLS*SILTY CLAY LOAM (44,09,C,a and b)

Location: Webster Co.: Pit a 0.13 mi. N and 700' E of SW cor. SE¼ Sec. 31, T4N R9W;
Pit b 0.12 mi. N and 700' E of SW cor. SE¼ Sec. 31, T4N R9W.
Vegetation and land use: Cultivated (milo stubble)
Topography: 5 percent upland slope
Drainage: Well drained
Parent Material: Loveland loess
Described and sampled by: H. E. Paden and G. A. Schumaker

Horizon	Description
Pit a	
Ap	0 to 4 inches. Dark brown (7.5YR 4/2, dry) silty clay loam, dark brown (7.5YR 3/2) when moist; moderate, fine platy structure separating to weak, very fine crumb structure; slightly hard, friable; noncalcareous; abrupt smooth boundary.
B2t	4 to 10 inches. Brown (7.5YR 5/4, dry) silty clay loam, dark brown (7.5YR 4/4) when moist; moderate, fine angular blocky structure; hard, friable; noncalcareous; clay films are prominent; dark organic stainings on cleavage planes; clear smooth boundary.
B3	10 to 18 inches. Brown (7.5YR 5/4, dry) silty clay loam, dark brown (7.5YR 4/3) when moist; weak, medium, prismatic structure breaking to weak, medium subangular blocky structure; slightly hard, friable; noncalcareous; clear wavy boundary.
Cca	18 to 60 inches. Light brown (7.5YR 6/4, dry) silt loam, brown (7.5YR 4/4) when moist; massive (structureless); slightly hard, very friable; calcareous.
Pit b	
Ap	0 to 4 inches. Dark brown (7.5YR 3/2 moist) silty clay loam; weak, very fine granular structure; hard, firm; noncalcareous; abrupt smooth boundary.
B3	4 to 11 inches. Dark brown (7.5YR 4/4, moist) silty clay loam; moderate, medium subangular blocky structure; slightly hard, friable; clear smooth boundary.
C1	11 to 15 inches. Dark brown (7.5YR 4/4, moist) silty clay loam; massive (structureless); slightly hard, friable; noncalcareous; clear wavy boundary.
C2ca	15 to 48 inches. Dark brown (7.5YR 4/4, moist) silt loam; massive (structureless); slightly hard, very friable; calcareous; violent effervescence.

Note: Dark colored organic stainings are common on ped faces 0-11". Soft calcium carbonate and iron concretions in C2ca. Reddish brown iron mottlings in C2ca.

*Recorrelated Geary silty clay loam (1966).

NUCKOLLS SILTY CLAY LOAM (44,09,C,a and b)

WEIGHT PERCENT AND VOLUME PERCENT OF WATER RETAINED

IDENTIFICATION	TENSIONS (BARS)					BD	TP	K
44 9 2 1	.1	.3	.6	3.	15.	G/CC	PCT	IN/HR
DEPTH						1		
0	32.09	26.36	24.63	21.97	14.39	1.35	49.06	.91
	43.32	35.58	33.25	29.65	19.42	1.59	40.00	.86
	FRAGMENT	24.58		SIEVED	13.74ROCK	PERCENT		
						1		
4	27.48	24.88	22.88	20.89	15.57	1.52	42.64	.09
	41.76	37.81	34.77	31.75	23.66	1.77	33.21	.04
	FRAGMENT	23.53		SIEVED	15.40ROCK	PERCENT		
						1		
10	27.09	23.46	22.75	19.86	14.64	1.54	41.89	.08
	41.71	36.12	35.03	30.58	22.54	1.77	33.21	.02
	FRAGMENT	23.29		SIEVED	14.84ROCK	PERCENT		
						1		
18	28.11	23.38	20.19	17.05	11.97	1.46	44.91	.08
	41.04	34.13	29.47	24.89	17.47	1.62	38.87	.23
	FRAGMENT	21.66		SIEVED	13.62ROCK	PERCENT		

IDENTIFICATION	TENSIONS (BARS)					BD	TP	K
44 9 2 2	.1	.3	.6	3.	15.	G/CC	PCT	IN/HR
DEPTH						1		
0	28.34	24.60	23.04	19.44	14.90	1.39	47.55	.07
	39.39	34.19	32.02	27.02	20.71	1.62	38.87	.25
	FRAGMENT	23.08		SIEVED	13.94ROCK	PERCENT		
						1		
4	27.70	24.13	22.80	18.87	14.78	1.54	41.89	.02
	42.65	37.16	35.11	29.05	22.76	1.76	33.58	.02
	FRAGMENT	23.26		SIEVED	14.02ROCK	PERCENT		
						1		
11	27.86	23.07	22.17	18.51	14.23	1.54	41.89	0
	42.90	35.52	34.14	28.50	21.91	1.75	33.96	.02
	FRAGMENT	23.33		SIEVED	17.61ROCK	PERCENT	18.80	
						1		
15	28.44	24.13	21.73	18.38	12.79	1.58	40.38	.02
	44.93	38.12	34.33	29.04	20.20	1.73	34.72	.17
	FRAGMENT	24.46		SIEVED	14.08ROCK	PERCENT	23.29	

1=FIST
2=CORE
3=LOOSE

UNNAMED "01" LOAM (45,01,P,a)

Location: Eastern Graham Co. area, Gripe Watershed; 1000' N, 1200' W of S¼ cor., Sec. 7, T7S, R28E.
Vegetation and land use: Grass; brush aspect; annual weeds and grasses, devil cholla, whitethorn, creosote, snakeweed, wolfberry.
Topography: Terrace remnant between rock hills, above inner valley of Safford basin. Nearly level or level, convex slopes (A). Slopes are 1%+. Elev. 3260'.
Drainage: Medium drainage on surface; well drained internally.
Parent Material: Alluvium from rhyolite, andesite, granite, basalt, tuff, and limestone.
Described and sampled by: Fred Gelderman and G. A. Schumaker

Horizon	Description
A11	0 to 1-1/2 inch. Brown (7.5YR 5/4) gravelly sandy loam, dark reddish brown (5YR 3/4) when moist; weak medium platy structure, weakly coherent, very friable, nonsticky, nonplastic; few very fine roots; very few very fine tubular and common very fine interstitial pores; mildly alkaline, pH 7.5; abrupt smooth boundary.
A12	1-1/2 to 10 inches. Reddish brown (5YR 4/4) loam, dark reddish brown (5YR 3/4) when moist; weak medium granular structure; slightly hard, friable, slightly sticky, slightly plastic; plentiful very fine and fine roots; common very fine tubular and common very fine interstitial pores; slightly acid, pH 6.5; clear smooth boundary.
IIB21t	10 to 18 inches. Reddish brown (5YR 5/4) light very gravelly clay; moderate fine and medium prismatic breaking to moderate fine and medium subangular blocky structure, rock controlled; hard, friable, very sticky, plastic; plentiful very fine interstitial pores; common thin clay films occur on ped faces, clay films line tubular or interstitial pores; moderately alkaline, pH 8.0; abrupt smooth boundary.
IIB22tca	18 to 28 inches. Yellowish red (5YR 4/6) very gravelly clay loam, red (2.5YR 4/6) when moist, with common fine distinct mottles of white lime (N8/), pink (7.5YR 7/4) when moist; weak fine and medium subangular blocky structure, rock controlled; slightly hard, friable, sticky, plastic; plentiful very fine roots; common very fine tubular, very few fine tubular and common very fine interstitial pores; few thin clay films on ped faces, clay films in tubular pores; strongly effervescent, moderately alkaline, pH 8.0: clear irregular boundary.
IIICca	28 to 96 inches plus. White (N8/) very gravelly and cobbly sandy loam, pink (7.5YR 7/4) when moist, with common medium distinct mottles as dark as reddish yellow (7.5YR 7/6) dry and strong brown (7.5YR 5/6) when moist; massive; hard, firm, slightly sticky, nonplastic; very few medium roots; very few very fine interstitial pores; violently effervescent; moderately alkaline, pH 8.0. Note: The IIICca is made up of weakly cemented lime strata with strata and tongues of very gravelly and cobbly calcareous materials ranging in texture from loam to loamy sand. A discontinuous laminar surface is on some of the cemented lime strata, in place.

Remarks: This soil is very similar, especially in coarse-fragment content, thickness of A horizon, color, and IIICca horizon, to the Pinaleno series set up in the Safford Area, Arizona soil survey, but the texture of the B horizon is light clay.

UNNAMED "01" LOAM (45,01,P,a)

```
      WEIGHT  PERCENT  AND  VOLUME  PERCENT  OF  WATER  RETAINED

IDENTIFICATION         T E N S I O N S  (BARS)
                                                                BD        TP       K
45   1   1   1     .1        .3        .6        3.        15.     G/CC      PCT     IN/HR

     DEPTH                                                          3
       0          17.37      9.13      8.14      6.72      5.81    1.56     41.13
                  27.09     14.24     12.69     10.48      9.06
                  FRAGMENT                        SIEVED   6.25ROCK PERCENT 11.04
                                                                    1
       1          13.55      9.52      8.99      8.10      6.74    1.60     39.62     1.93
                  21.68     15.23     14.38     12.96     10.78                       3.06
                  FRAGMENT   9.56                 SIEVED   8.10ROCK PERCENT 16.05
                                                                    1
      10          25.24     20.14     16.63     15.72     14.55    1.49     43.77
                  37.60     30.00     24.77     23.42     21.67    1.78     32.83
                  FRAGMENT  18.14                 SIEVED  26.41ROCK PERCENT 40.44
                                                                    3
      18          20.42     19.53     18.83     17.02     12.22    1.27     52.08
                  25.93     24.80     23.91     21.61     15.51
                  FRAGMENT                        SIEVED  27.94ROCK PERCENT 50.68

       1=FIST
       2=CORE
       3=LOOSE
```

PINALENO VERY GRAVELLY LOAM (45,01,P,b)

Location: Eastern Graham Co. area, Gripe Watershed; 160' N, 50' E of S½ cor. Sec. 7, T7S, R28E (S of flume, N of old Clifton Road).
Vegetation and land use: Annual weeds and grass, devil cholla, whitethorn.
Topography: Old terrace remnant between rock hills above inner valley of the Safford Basin. Nearly level or level slopes (A). 1% slopes, and convex. Elev. 3275'.
Drainage: Medium drainage on surface; well drained internally.
Parent Material: Alluvium from rhyolite, andesite, granite, basalt, tuff and limestone.
Described and sampled by: Fred Gelderman and G. A. Schumaker

Horizon	Description
A11	0 to 1-1/2 inch. Brown (7.5YR 5/4) gravelly sandy loam, dark brown (7.5YR 3/2) when moist; weak medium platy structure; slightly hard, very friable; nonsticky, nonplastic; few very fine roots; very few very fine tubular and plentiful very fine interstitial pores; mildly alkaline, pH 7.5; abrupt smooth boundary.
A12	1-1/2 to 11 inches. Reddish brown (5YR 5/4) light very gravelly clay loam, reddish brown (5YR 4/4) when moist; moderate fine and medium granular structure; weakly coherent, friable, sticky, plastic; plentiful very fine roots; few very fine tubular and common very fine interstitial pores; mildly alkaline, pH 7.0; clear smooth boundary.
IIB21t	11 to 19 inches. Yellowish red (5YR 5/6) heavy very gravelly clay loam, yellowish red (5YR 4/6) when moist; moderate fine and medium subangular blocky structure, rock controlled; hard, friable, sticky, plastic; few very fine roots; common very fine tubular and few very fine interstitial pores; few thin clay films on ped faces, clay films in tubular pores; moderately alkaline, pH 8.0; clear wavy boundary.
IIB22tca	19 to 25 inches. Yellowish red (5YR 5/6) very gravelly clay loam, yellowish red (5YR 4/6) when moist, common fine distinct mottles of white (5YR 8/1) with lime segregations, pink (5YR 7/4) when moist: moderate fine subangular blocky structure, rock controlled; hard, friable, sticky, plastic; few very fine roots; few very fine tubular and few very fine interstitial pores; few thin clay films on ped faces, and in tubular pores; slightly to strongly effervescent; moderately alkaline, pH 8.0; abrupt wavy boundary.
IIIC1ca	25 to 60 inches. Variegated, ranging from pinkish white to reddish yellow (7.5YR 8/2 to 8/6) very gravelly and cobbly sandy loam, pink to reddish yellow (7.5YR 7/4 to 7/8) when moist; weakly cemented, massive; very hard, firm, slightly sticky, nonplastic; very few very fine interstitial pores; violently effervescent; gradual wavy boundary.
IIIC2	60 to 87 inches plus. Variegated, ranging from white through black, including red, depending on mineralogy, very gravelly sand; single grain; loose, nonsticky, nonplastic; many very fine and fine interstitial pores. This horizon consists of strata of very gravelly sand with and without lime cementation. It would be suitable for highway subbase.

Remarks: This soil is very similar to, but is less deep to the Cca horizon than the Pinaleno soil described in the Safford Area, Arizona.

PINALENO VERY GRAVELLY LOAM (45,01,P,b)

```
       WEIGHT  PERCENT  AND  VOLUME  PERCENT  OF  WATER  RETAINED

IDENTIFICATION           T E N S I O N S  (BARS)
                                                                       BD        TP       K
45   1    1   2      .1        .3        .6        3.       15.       G/CC      PCT     IN/HR

     DEPTH                                                                 3
       0            17.78     13.13      9.80      7.55      6.21      1.63    38.49
                    28.98     21.40     15.97     12.30     10.12
                    FRAGMENT                       SIEVED    6.66ROCK PERCENT 27.32
                                                                           3
       1            18.88     13.28     11.42     10.52      8.20      1.58    40.38     6.59
                    29.83     20.98     18.04     16.62     12.95                        1.82
                    FRAGMENT                       SIEVED   10.39ROCK PERCENT 29.33
                                                                           3
      11            14.50     14.13     13.06     11.46     10.97      1.42    46.42
                    20.59     20.06     18.54     16.27     15.57
                    FRAGMENT                       SIEVED   15.84ROCK PERCENT 51.97
                                                                           3
      19            18.10     19.17     16.30     17.02     13.16      1.21    54.34
                    21.90     23.19     19.72     20.59     15.92
                    FRAGMENT                       SIEVED   19.90ROCK PERCENT 49.37
                                                          (14.74)

       1=FIST
       2=CORE
       3=LOOSE
```

UNNAMED "02" GRAVELLY SANDY LOAM (45,02,P,a)

Location: Eastern Graham Co. area, Tanque Watershed; 285' N, 25' W of SE cor. Sec. 25, T9S, R26E (SW of rain gauge).
Vegetation and land use: Mesquite, burroweed, snakeweed, yucca, Acacia spp., annuals.
Topography: Nearly level, rounded ridge top of old terrace remnant. Nearly level or level, convex slope (A). 1% slopes. Elev. 3645'.
Drainage: Slow drainage on surface; well drained internally.
Parent Material: Alluvium from granitic rocks; limestone influence.
Described and sampled by: Fred Gelderman and G. A. Schumaker

Horizon	Description
A11	0 to 2 inches. Brown (10YR 5/3) light gravelly sandy loam, dark brown (7.5YR 4/2) when moist; moderate fine platy structure, slightly hard, very friable, nonsticky, nonplastic; few very fine roots; few very fine tubular and common very fine and fine interstitial pores; strongly acid, pH 5.5; abrupt smooth boundary.
A12	2 to 19 inches. Brown (7.5YR 5/4) gravelly sandy loam, dark reddish brown (5YR 3/4) when moist; massive; slightly hard, friable, slightly sticky, nonplastic; plentiful very fine and fine roots; common very fine tubular and few very fine interstitial pores; moderately alkaline, pH 8.0; abrupt smooth boundary.
B2	19 to 28 inches. Light brown (7.5YR 6/4) light gravelly sandy loam, reddish brown (5YR 4/4) when moist, few medium distinct mottles that are yellowish red (5YR 5/6 and 4/6) dry and moist, common fine distinct pinkish white (5YR 8/2) mottles that are not apparent when moist; massive, breaking to weak medium subangular blocky structure; slightly hard, friable, slightly sticky, nonplastic; plentiful very fine and fine roots; common very fine tubular and few very fine and fine interstitial pores; none to slight effervescence; moderately alkaline, pH 8.0; gradual smooth boundary.
C1ca	28 to 40 inches. Light brown (7.5YR 6/4) light gravelly sandy loam, dark brown (7.5YR 4/4) when moist, common fine distinct lime mottles and filaments of white (N8/) that are not apparent when moist; massive; slightly hard, very friable, slightly sticky, nonplastic; few very fine and fine roots; few very fine tubular and few very fine and fine interstitial pores; strongly effervescent, moderately alkaline, pH 8.0; clear wavy boundary.
C2	40 to 53 inches. Light brown (7.5YR 6/4) gravelly loamy sand, dark brown (7.5YR 4/4) when moist; common fine distinct mottles of white (N8/), pinkish white (7.5YR 8/2) when moist; massive; slightly hard, friable, nonsticky, nonplastic; few very fine and fine roots; very few very fine tubular and common very fine and fine interstitial pores; moderately alkaline, pH 8.0; abrupt smooth boundary.
IIB2tcab	53 to 60 inches plus. Yellowish red (5YR 5/6) gravelly sandy clay loam, yellowish red (5YR 4/6) when moist, common fine distinct lime mottles and filaments of light gray (5YR 7/1) that are not apparent when moist; massive; hard, firm, sticky, slightly plastic; very few very fine roots; common very fine and fine pores; few thin oriented clay films as bridges holding mineral grains together; slightly to strongly effervescent; moderately alkaline, pH 8.0.

Remarks: The horizon designations are very tentative; the B2 horizon is very weak and is mottled as a buried B23ca would be. The horizons were originally designated as A1, C1, C2, C3ca, C4, and IIB2tcab. The B2 horizon may be a portion of a truncated soil that was laid in over the truncated soil evident below 53 inches.

UNNAMED "02" GRAVELLY SANDY LOAM (45,02,P,a)

```
       WEIGHT  PERCENT  AND  VOLUME  PERCENT  OF  WATER  RETAINED

IDENTIFICATION       T E N S I O N S  (BARS)
                                                                  BD        TP
45   2   1   1      .1        .3        .6        3.        15.       G/CC      PCT

     DEPTH                                                              3
      0            10.02      5.64      4.30      3.01      2.43      1.87     29.43
                   18.73     10.54      8.04      5.62      4.54
                   FRAGMENT                         SIEVED  2.80ROCK  PERCENT  14.47
                                                                        3
      2             7.83      5.97      4.86      4.04      3.47      1.78     32.83
                   13.93     10.62      8.65      7.19      6.17
                   FRAGMENT                         SIEVED  4.23ROCK  PERCENT  20.52
                                                                        1
     19             9.06      5.99      4.87      4.07      3.21      1.84     30.57
                   16.67     11.02      8.96      7.48      5.90      1.90     28.30
                   FRAGMENT   6.37                  SIEVED  4.28ROCK  PERCENT  24.82
                                                                        3
     28             7.45      5.90      4.32      3.32      3.07      1.85     30.19
                   13.78     10.91      7.99      6.14      5.67
                   FRAGMENT                         SIEVED  3.66ROCK  PERCENT  31.37
                                                                        3
     40             5.27      4.34      3.97      3.26      3.02      1.78     32.83
                    9.38      7.72      7.06      5.80      5.37
                   FRAGMENT                         SIEVED  3.34ROCK  PERCENT  42.78

        1=FIST
        2=CORE
        3=LOOSE
```

UNNAMED "02" GRAVELLY SANDY LOAM (45,02,P,b)

Location: Eastern Graham Co. area, Tanque Watershed; 180' N, 320' W of SE cor. Sec. 25, T9S, R26E (SW of rain gauge).
Vegetation and land use: Burroweed, mesquite, snakeweed, yucca, mormon tea, Acacia spp., annuals.
Topography: Nearly level, rounded ridge top of old terrace remnant. Nearly level or level, convex slope (A). 1% slopes. Elev. 3650'.
Drainage: Slow drainage on surface; well drained internally.
Parent Material: Alluvium from granitic rocks; limestone influence.
Described and sampled by: Fred Gelderman and G. A. Schumaker

Horizon	Description
A1	0 to 1-1/2 inch. Yellowish brown (10YR 5/4) gravelly loamy sand, dark brown (10YR 3/3) when moist; moderate medium platy structure, breaking to weak medium granular; weakly coherent, very friable, nonsticky, nonplastic; few very fine roots; few very fine tubular and common very fine and fine interstitial pores; strongly acid, pH 5.5; abrupt smooth boundary.
B2	1-1/2 to 26 inches. Brown (7.5YR 5/4) gravelly sandy clay loam, dark reddish brown (5YR 3/4) when moist; massive; hard, friable, sticky, slightly plastic; few very fine and fine and few medium roots; common very fine and fine tubular and few very fine and fine interstitial pores; very few thin oriented clay bridges holding mineral grains together; mildly alkaline, pH 7.8; abrupt smooth boundary. (A very gravelly loam stratum at 15-19").
C1ca	26 to 31 inches. Brown (7.5YR 5/4) gravelly sandy loam, reddish brown (5YR 4/4) when moist, common medium distinct mottles of yellowish red (5YR 5/6) that are yellowish red (5YR 4/6) when moist and common fine distinct lime mottles and veining of white (5YR 8/1) that are not apparent when moist; massive; hard, friable, slightly sticky, nonplastic; few very fine roots; common very fine and fine, few medium tubular pores; few very fine and fine interstitial pores; slightly effervescent; moderately alkaline, pH 8.0; abrupt wavy boundary.
IIC2	31 to 49 inches. Reddish yellow (7.5YR 6/6) sand, strong brown (7.5YR 5/6) when moist; single grain; slightly hard, very friable, nonsticky, nonplastic; very few very fine roots; few very fine tubular and common very fine and fine interstitial pores; moderately alkaline, pH 8.0; clear wavy boundary. Horizon contains a few thin strata of sand bridged with clay films.
IIC3	49 to 61 inches plus. Reddish brown (5YR 5/4) loamy sand and occasional thin stratum of sand, yellowish red (5/6) clay films on sand grains, yellowish red (5YR 4/6) when moist; massive; hard, very friable, slightly sticky, nonplastic; few fine roots; few very fine tubular and few very fine interstitial pores; few thin oriented clay films as bridges holding mineral grains together; moderately alkaline, pH 8.0.

Remarks: The B2 horizon of this soil profile contains just enough clay to be a sandy clay loam texture. Otherwise, this soil is very similar to the profile of pit 45,02,P,a.

UNNAMED "02" GRAVELLY SANDY LOAM (45,02,P,b)

```
      WEIGHT  PERCENT  AND  VOLUME  PERCENT  OF  WATER  RETAINED

IDENTIFICATION         T E N S I O N S  (BARS)
                                                                 BD       TP       K
45   2   1   2      .1       .3       .6       3.       15.     G/CC     PCT    IN/HR

     DEPTH                                                          3
      0            9.89     5.79     3.98     2.99     2.28     1.83    30.94
                  18.09    10.59     7.28     5.47     4.17
                  FRAGMENT                     SIEVED  2.82ROCK PERCENT  9.03
                                                                    3
      1            9.09     7.58     6.62     5.53     4.30     1.66    37.36     .62
                  15.08    12.58    10.98     9.17     7.13                     5.45
                  FRAGMENT                     SIEVED  4.95ROCK PERCENT 22.72
                                                                    3
     26            9.96     5.58     4.99     4.55     3.65     1.80    32.08
                  17.92    10.04     8.98     8.19     6.57
                  FRAGMENT                     SIEVED  9.70ROCK PERCENT 39.81
                                                                    3
     31            7.01     5.98     4.25     3.29     3.02     1.68    36.60
                  11.77    10.04     7.14     5.52     5.07
                  FRAGMENT                     SIEVED  4.46ROCK PERCENT 21.68

     1=FIST
     2=CORE
     3=LOOSE
```

UNNAMED "03" GRAVELLY SANDY LOAM (45,03,P,a)

Location: Eastern Graham Co. area, Tanque Watershed; 325' N, 215' E of SW cor. Sec. 30, T9S, R27E (ENE of rain gauge).
Vegetation and land use: Mesquite, cholla, yucca, prickly pear, burroweed, snakeweed, annuals, Acacia spp.
Topography: Nearly level or level, convex slopes, 1% slopes. Elev. 3640'.
Drainage: Slow drainage on surface; well drained internally.
Parent Material: Alluvium from granitic rocks; limestone influence.
Described and sampled by: Fred Gelderman and G. A. Schumaker

Horizon	Description
A1	0 to 1-1/2 inch. Light yellowish brown (10YR 6/4) gravelly sandy loam, dark yellowish brown (10YR 3/4) when moist; moderate medium platy structure; weakly coherent, very friable, nonsticky, nonplastic; very few very fine roots; very few very fine tubular and common very fine and fine interstitial pores; medium acid, pH 6.0; abrupt smooth boundary.
B2	1-1/2 to 23 inches. Reddish brown (5YR 5/4) heavy gravelly sandy loam, dark reddish brown (5YR 3/4) when moist; massive breaking to weak fine and medium granular structure; slightly hard, very friable, slightly sticky, nonplastic; few very fine and fine roots; common very fine, fine, medium tubular and few very fine and fine interstitial pores; few thin oriented clay films as bridges holding mineral grains together; neutral, pH 7.0; abrupt smooth boundary.
C1ca	23 to 29 inches. Light brown (7.5YR 6/4) light very gravelly sandy loam, reddish brown (5YR 4/4) when moist, common fine distinct lime filaments of white (N8/) that are not apparent when moist; massive; hard, friable, nonsticky, nonplastic; few very fine and fine roots; very few very fine tubular and few very fine interstitial pores; strongly effervescent; moderately alkaline; pH 8.0; clear wavy boundary.
IIB2tcab	29 to 35 inches plus. Reddish brown (5YR 5/4) gravelly loam, yellowish red (5YR 4/6) when moist, common fine distinct mottles of white (N8/), (5YR 8/1) when moist; massive; hard, friable, slightly sticky, plastic; very few very fine and fine roots; very few very fine tubular and very few very fine interstitial pores; common thin oriented clay films as bridges; strongly effervescent; pH 8.0.

Remarks: Has 1/8" veneer of sand on surface. This soil is similar to the soil described as sample 45,02,P,a and is only 240 feet east of that pit.

UNNAMED "03" GRAVELLY SANDY LOAM (45,03,P,a)

```
      WEIGHT  PERCENT  AND  VOLUME  PERCENT  OF  WATER  RETAINED

IDENTIFICATION        T E N S I O N S  (BARS)
                                                              BD          TP      K
45   3   1   1     .1       .3       .6       3.       15.    G/CC        PCT    IN/HR

     DEPTH                                                          3
       0           6.41     3.68     2.73     2.39     1.98    1.87       29.43
                  11.98     6.88     5.10     4.46     3.70
                  FRAGMENT                     SIEVED   2.85ROCK PERCENT 20.91
                                                                    3
       1           8.91     6.15     5.07     4.65     3.92    1.70       35.85   1.33
                  15.14    10.45     8.61     7.90     6.66                       1.22
                  FRAGMENT                     SIEVED   3.87ROCK PERCENT 25.27
                                                                    3
      23           7.35     5.86     4.80     3.58     2.13    1.82       31.32
                  13.37    10.66     8.73     6.51     3.87
                  FRAGMENT                     SIEVED   5.18ROCK PERCENT 43.32
                                                                    1
      29          11.11    10.50    10.46     9.84     8.10    1.80       32.08    .25
                  19.99    18.90    18.82    17.71    14.58    1.96       26.04    0
                  FRAGMENT 10.21               SIEVED   8.10ROCK PERCENT 26.78

      1=FIST
      2=CORE
      3=LOOSE
```

UNNAMED "07" GRAVELLY SANDY LOAM (45,03,P,b)

Location: Eastern Graham Co. area, Tanque Watershed; 325' N, 475' E of SW cor. Sec. 30, T9S, R27E, (E of rain gauge).
Vegetation and land use: Burroweed, mormon tea, mesquite, yucca, snakeweed, cholla.
Topography: Nearly level top of rounded ridge that is remnant of dissected terrace. Slopes are nearly level or level (2%), convex (A). Elev. 3635'.
Drainage: Slow drainage on surface; well drained internally.
Parent Material: Alluvium from granitic rocks; some limestone influence.
Described and sampled by: Fred Gelderman and G. A. Schumaker

Horizon	Description
A1	0 to 2 inches. Light brown (7.5YR 6/4) light gravelly sandy loam, dark reddish brown (5YR 3/4) when moist; moderate medium platy structure; weakly coherent, very friable, nonsticky, nonplastic; very few very fine roots; very few very fine tubular, common very fine interstitial and few fine vesicular pores; medium acid, pH 6.0; clear smooth boundary.
B2	2 to 19 inches. Reddish brown (5YR 5/4) gravelly loam, dark reddish brown (5YR 3/4) when moist; massive; slightly hard to hard, very friable, slightly sticky, nonplastic; plentiful very fine and fine, few medium roots; common very fine and fine tubular and few very fine interstitial pores; few thin oriented clay films as bridges holding mineral grains together; slightly acid, pH 6.5; gradual smooth boundary.
IIC1	19 to 23 inches. Light brown (7.5YR 6/4) clay loam, reddish brown (5YR 4/4) when moist; massive; slightly hard to hard, friable, slightly sticky, plastic; very few very fine roots; few very fine and fine tubular and few very fine interstitial pores; mildly alkaline, pH 7.5: clear smooth boundary.
IIIB21tcab	23 to 30 inches. Reddish brown (5YR 5/4) heavy gravelly clay loam, yellowish red (5YR 4/6) when moist, common fine distinct lime mottles of white (N8/), pinkish white (5YR 8/2) when moist; massive; hard, friable, sticky, plastic; very few very fine roots; very few very fine tubular and few very fine interstitial pores; common thin clay films on ped faces, oriented clay as bridges holding mineral grains together; strongly effervescent; moderately alkaline, pH 8.0.

Remarks: Has about 1/8" of sand veneer on surface. This soil is similar to the soil described for sample pit 45,02,P,b, but is 795' E of that stop. The major difference is in the nature of the material underlying the soil at moderate depth.

UNNAMED "07" GRAVELLY SANDY LOAM (45,03,P,b)

```
       WEIGHT  PERCENT  AND  VOLUME  PERCENT  OF  WATER  RETAINED

IDENTIFICATION         T E N S I O N S  (BARS)
                                                                  BD        TP        K
45   3   1   2      .1         .3        .6        .3        15.       G/CC      PCT      IN/HR

     DEPTH                                                                 3
       0          10.99       7.00      4.90      3.58      2.87      1.88     29.06
                  20.66      13.16      9.21      6.73      5.39
                  FRAGMENT                         SIEVED   1.46ROCK  PERCENT  12.38
                                                                           1
       1           9.59       6.14      5.12      4.09      3.01      1.74     34.34     2.57
                  16.68      10.68      8.90      7.11      5.23      1.81     31.70     5.63
                  FRAGMENT    5.85                 SIEVED   4.43ROCK  PERCENT  18.05
                                                                           3
      18          12.99       9.06      6.84      5.99      4.30      1.65     37.74
                  21.43      14.94     11.28      9.88      7.09
                  FRAGMENT                         SIEVED   2.44ROCK  PERCENT  25.85
                                                                           1
      23          15.50      12.57     11.03     10.51     10.37      1.80     32.08      .48
                  27.90      22.62     19.85     18.91     18.66      1.91     27.92      .22
                  FRAGMENT   11.86                 SIEVED  12.19ROCK  PERCENT  32.66

       1=FIST
       2=CORE
       3=LOOSE
```

UNNAMED "08" VERY GRAVELLY SANDY LOAM (45,04,P,a)

Location: Eastern Graham Co. area, Monk Watershed; 925' N, 10' W of SE cor., Sec. 33, T11S, R26E (NE of rain gauge #14).
Vegetation and land use: Curly mesquite, black grama, sideoats, three-awns, bush muhly, snakeweed, catclaw.
Topography: Side of ridge or hill that is remnant of old terrace. Moderately sloping (23%), convex (C), elev. 4640'.
Drainage: Rapid drainage on surface; well drained internally.
Parent Material: Alluvium from andesite, granite, rhyolite and tuff.
Described and sampled by: Fred Gelderman and G. A. Schumaker

Horizon	Description
A11	0 to 2 inches. Dark grayish brown (10YR 4/2) very gravelly and cobbly sandy loam, dark reddish brown (5YR 3/2) when moist; moderate fine and medium crumb structure; weakly coherent, very friable, nonsticky, nonplastic; abundant very fine and fine roots; few very fine and fine tubular and many very fine and fine interstitial pores; slightly acid, pH 6.5; abrupt smooth boundary.
A12	2 to 5-1/2 inches. Very dark grayish brown (10YR 3/2) very gravelly and cobbly loam, dark reddish brown (5YR 2/2) when moist; moderate fine subangular blocky structure, rock controlled, slightly hard, very friable, slightly sticky, slightly plastic; abundant very fine and fine roots; common very fine and fine tubular and common very fine and fine interstitial pores; neutral, pH 7.0; clear smooth boundary.
B2t	5-1/2 to 14 inches. Very dark grayish brown (10YR 3/2) very gravelly clay, dark reddish brown (5YR 3/2) when moist; moderate fine and medium subangular blocky structure, rock controlled; hard, friable, sticky, plastic; plentiful very fine and fine and few medium roots; few very fine and fine tubular and common very fine and fine interstitial pores; few thin clay films on ped faces, oriented clay occurs as bridges holding mineral grains together; neutral, pH 7.0; gradual wavy boundary with occasional deep tongues.
IIC	14 to 32 inches plus. Banded colors, ranging by strata from light brownish gray (10YR 6/2) dry and dark grayish brown (10YR 4/2) moist, yellowish red (5YR 5/6) and yellowish red (5YR 4/6), dark grayish brown (10YR 4/2) and very dark grayish brown (10YR 3/2) very gravelly sandy loam, weakly cemented by clay or possibly silica; massive; very hard, friable, slightly sticky, slightly plastic; no pores observed; common thin clay bridges - yellowish red stratum; mildly alkaline, pH 7.5.

Remarks: Tentatively identified by M. S. James, State Soil Scientist, and Y. H. Havens, Soil Correlation Specialist, Arizona, as Signal. It is similar to the Signal soil described in Santa Cruz County, Arizona. This soil, however, is very gravelly (skeletal).

UNNAMED "08" VERY GRAVELLY SANDY LOAM (45,04,P,a)

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     WEIGHT  PERCENT  AND  VOLUME  PERCENT  OF  WATER  RETAINED

IDENTIFICATION        T E N S I O N S  (BARS)
                                                               BD        TP
45   4   1   1     .1        .3        .6        3.        15.      G/CC      PCT

     DEPTH                                                            3
      0           12.84      9.50      8.73      7.85      6.63     1.55     41.51
                  19.90     14.72     13.53     12.16     10.27
                  FRAGMENT                        SIEVED   8.85ROCK PERCENT 46.33
                                                                      3
      2           12.86     10.83      9.81      9.83      8.64      .49     81.51
                   6.30      5.30      4.80      4.81      4.23
                  FRAGMENT                        SIEVED  11.79ROCK PERCENT 64.56
                                                                      3
     14           15.14     14.08     13.05     10.31      9.86     1.48     44.15
                  22.40     20.83     19.31     15.25     14.59
                  FRAGMENT                        SIEVED  10.58ROCK PERCENT 67.60

      1=FIST
      2=CORE
      3=LOOSE
```

UNNAMED "08" VERY GRAVELLY SANDY LOAM (45,04,P,b)

Location: Eastern Graham Co. area, Monk Watershed; 1025' N, 25' W of SE cor. Sec. 33, T11S, R26E (NE of rain gauge #14).
Vegetation and land use: Tobosa, three-awns, curly mesquite, sideoats grama.
Topography: Side-slope of ridge or hill, remnant of old terrace. Moderately sloping (22%) convex slopes (C). Elev. 4650'.
Drainage: Rapid drainage on surface; well drained internally.
Parent Material: Alluvium from andesite, granite, rhyolite, tuff, and some limestone.
Described and sampled by: Fred Gelderman and G. A. Schumaker

Horizon	Description
A11	0 to 2 inches. Yellowish brown (10YR 5/4) very gravelly and cobbly sandy loam, dark brown (10YR 3/3) when moist; moderate fine and medium platy structure; weakly coherent, very friable, slightly sticky, nonplastic; plentiful very fine and fine roots; few very fine tubular and common very fine and fine interstitial pores; slightly acid, pH 6.4; abrupt smooth boundary.
A12	2 to 5 inches. Dark grayish brown (10YR 4/2) very gravelly and cobbly clay loam, dark reddish brown (5YR 3/2) when moist; weak fine and medium subangular blocky structure, rock controlled; slightly hard, very friable, sticky, plastic; plentiful very fine and fine roots; few very fine tubular and common very fine and fine interstitial pores; slightly acid, pH 6.5; abrupt smooth boundary.
B2t	5 to 14-1/2 inches. Dark brown (7.5YR 3/2) very gravelly and cobbly clay, dark brown (7.5YR 3/2) when moist; moderate fine and medium subangular blocky structure, rock controlled; hard, friable, sticky, plastic; plentiful very fine and fine roots; few very fine tubular and few very fine and fine interstitial pores; few thin clay films on ped faces, oriented clays as bridges holding mineral grains together; mildly alkaline, pH 7.5; gradual wavy boundary.
IIC	14-1/2 to 25 inches plus. Colors banded by strata ranging from light brownish gray (10YR 6/2) dry and dark grayish brown (10YR 4/2) moist, yellowish red (5YR 5/6) dry and yellowish red (5YR 4/6) moist, and dark grayish brown (10YR 4/2) dry and dark grayish brown (10YR 3/2) moist gravelly and cobbly sandy loam; weakly cemented, massive; very hard, firm, slightly sticky, slightly plastic; very few very fine interstitial pores; noneffervescent except for strong effervescence at 19-21"; mildly to moderately alkaline, pH 7.5 and 8.0.

UNNAMED "08" VERY GRAVELLY SANDY LOAM (45,04,P,b)

```
      WEIGHT  PERCENT  AND  VOLUME  PERCENT  OF  WATER  RETAINED

IDENTIFICATION        T E N S I O N S  (BARS)
                                                                  BD        TP        K
45   4   1   2      .1       .3        .6        3.       15.     G/CC      PCT     IN/HR

     DEPTH                                                          3
       0           15.35    10.21     8.80      8.36      6.53    1.63     38.49
                   25.02    16.64    14.34     13.62     10.64
                   FRAGMENT                     SIEVED    7.16ROCK PERCENT 48.98
                                                                    3
       2           15.40    12.54    10.33      8.65      7.70    1.48     44.15
                   22.79    18.55    15.28     12.80     11.39
                   FRAGMENT                     SIEVED 15.00ROCK PERCENT 61.73
                                                                    1
       5           29.77    28.04    27.31     27.38     22.95    1.37     48.30        .62
                   40.78    38.41    37.41     37.51     31.44    1.65     37.74       5.44
                   FRAGMENT 27.09               SIEVED 36.88ROCK PERCENT 40.76
                                                                    3
      14           18.25    13.06    12.26     11.26      5.64    1.47     44.53
                   26.82    19.19    18.02     16.55      8.29
                   FRAGMENT                     SIEVED 13.59ROCK PERCENT 65.63

       1=FIST
       2=CORE
       3=LOOSE
```

GRABE GRAVELLY SANDY LOAM (45,05,P,a)

Location: Eastern Graham Co. area, Monk Watershed; 500' N, 10' W of SE cor. Sec. 33, T11S, R26E (SE of rain gauge #14).
Vegetation and land use: Annual grasses, snakeweed, three-awns, catclaw, mesquite, bush muhly.
Topography: Flood plain of local drainage. Nearly level or level, convex slopes (3%). Elev. 4560'.
Drainage: Medium drainage on surface; well drained internally.
Parent Material: Alluvium from andesite, rhyolite, granite, tuff, and other rocks.
Described and sampled by: Fred Gelderman and G. A. Schumaker

Horizon	Description
A11	0 to 1-1/2 inch. Grayish brown (10YR 5/2) gravelly fine sandy loam, very dark grayish brown (10YR 3/2) when moist; weak medium and coarse platy structure; weakly coherent, very friable, nonsticky, nonplastic; few very fine and fine and plentiful medium roots; very few very fine tubular and few very fine and fine interstitial pores; slightly acid, pH 6.5; abrupt smooth boundary.
A12	1-1/2 to 9-1/2 inches. Dark grayish brown (10YR 4/2) gravelly sandy loam, very dark brown (10YR 2/2) when moist; weak medium granular structure; weakly coherent, very friable, nonsticky, nonplastic; abundant very fine and fine and few medium roots; few very fine tubular and common very fine and fine interstitial pores; mildly alkaline, pH 7.5; abrupt smooth boundary.
C1[1/]	9-1/2 to 15-1/2 inches. Dark gray (10YR 4/1) gravelly loam, very dark brown (10YR 2/2) when moist; massive, breaking to moderate medium granular structure; slightly hard, friable, slightly sticky, nonplastic; abundant very fine and fine roots; few very fine and fine and medium tubular pores, and common very fine interstitial pores; moderately alkaline, pH 8.0; clear smooth boundary.
C2	15-1/2 to 46 inches. Dark gray (10YR 4/1) gravelly loam, very dark brown (10YR 2/2) when moist; massive; slightly hard, friable, slightly sticky, slightly plastic; gravel content approximately 40%; plentiful very fine and fine roots; common very fine, few fine and medium tubular and few very fine interstitial pores; moderately alkaline, pH 8.0; clear wavy boundary.
IIC3	46 to 62 inches plus. Grayish brown (10YR 5/2) very gravelly loam, dark brown (10YR 3/3) when moist; massive; weakly coherent, very friable, nonsticky, slightly plastic; few very fine and fine roots; common very fine and fine tubular and few very fine interstitial pores; moderately alkaline, pH 8.0.

Remarks: This soil qualifies for the Grabe series but has more gravel, about 18% by volume, than is normal in the series.

[1/] This horizon has the appearance of a buried A horizon in the pit. Grass roots affect structure and it seems darker with moisture which penetrated to 14 inches.

SAFFORD, ARIZONA

GRABE GRAVELLY SANDY LOAM (45,05,P,a)

```
     WEIGHT  PERCENT  AND  VOLUME  PERCENT  OF  WATER  RETAINED

IDENTIFICATION        T E N S I O N S  (BARS)
                                                            BD       TP      K
45   5   1   1     .1      .3      .6      3.      15.     G/CC     PCT    IN/HR

     DEPTH                                                    3
      0          16.66   11.04    8.01    8.12    7.22    1.57    40.75
                 26.15   17.33   12.57   12.74   11.33
                 FRAGMENT                 SIEVED  6.68ROCK PERCENT 30.44
                                                              2
      1          10.90    9.66    9.21    8.29    7.95    1.63    38.49
                 17.76   15.74   15.01   13.51   12.95
                 FRAGMENT                 SIEVED  6.20ROCK PERCENT 31.17
                                                              1
      9          14.00   11.78    9.59    8.64    6.01    1.47    44.53    4.06
                 20.58   17.31   14.09   12.70    8.83    1.56    41.13    8.97
                 FRAGMENT  9.51           SIEVED  7.14ROCK PERCENT 33.11
                                                              1
     15          14.99   12.15   10.24    9.96    5.67    1.46    44.91    2.33
                 21.88   17.73   14.95   14.54    8.27    1.58    40.38    2.09
                 FRAGMENT 11.76           SIEVED  8.66ROCK PERCENT 35.91
                                                              3
     46          17.44   12.08   10.57    9.34    6.90    1.61    39.25
                 28.07   19.44   17.01   15.03   11.10
                 FRAGMENT                 SIEVED  7.73ROCK PERCENT 30.43

      1=FIST
      2=CORE
      3=LOOSE
```

UNNAMED "09" GRAVELLY SANDY LOAM (45,05,P,b)

Location: Eastern Graham Co. area, Monk Watershed; 550' N, 375' W of SE cor. Sec. 33, T11S, R26E, (S of rain gauge #14).
Vegetation and land use: Annual grasses, snakeweed, catclaw, mesquite, yucca, cholla, bush muhly.
Topography: Flood plain of local drainage. Nearly level or level (3%) slopes, convex (A). Elev. 4565'.
Drainage: Surface has medium drainage; well drained internally.
Parent Material: Alluvium from andesite, rhyolite, granite, tuff, and others.
Described and sampled by: Fred Gelderman and G. A. Schumaker

Horizon	Description
A11	0 to 1-1/2 inch. Grayish brown (10YR 5/2) gravelly fine sandy loam, very dark grayish brown (10YR 3/2) when moist; weak medium and coarse platy structure; weakly coherent, very friable, nonsticky, nonplastic; few very fine and fine and few medium roots; very few very fine tubular and common very fine and fine interstitial pores; medium acid, pH 6.0; abrupt smooth boundary.
A12	1-1/2 to 8 inches. Dark brown (10YR 4/3) gravelly sandy loam, very dark brown (10YR 2/2) when moist; weak medium granular structure; weakly coherent, very friable, nonsticky, nonplastic; abundant very fine and fine and few medium roots; few very fine tubular and common very fine and fine interstitial pores; slightly acid, pH 6.0; abrupt smooth boundary.
C1	8 to 24 inches. Dark gray (10YR 4/1) light gravelly loam, very dark brown (10YR 2/2) when moist; massive, breaking to moderate medium granular structure; slightly hard, friable, slightly sticky, nonplastic; abundant very fine and fine roots to 15", plentiful very fine and fine roots below 15"; few very fine and fine tubular and few very fine interstitial pores; neutral pH 7.0; clear smooth boundary.
C2	24 to 36 inches. Grayish brown (10YR 5/2) light gravelly loam, very dark brown (10YR 2/2) when moist; massive; slightly hard, very friable, slightly sticky, slightly plastic; plentiful very fine and fine roots; common very fine tubular and few very fine and fine interstitial pores; mildly alkaline pH 7.8; clear wavy boundary.
IIC3	36 to 60 inches[1]. Grayish brown (10YR 5/2) very gravelly sand[2], dark brown (10YR 3/3) when moist; massive; weakly coherent, friable, nonsticky, nonplastic; few very fine and fine roots; very few very fine tubular and common very fine and fine interstitial pores; moderately alkaline, pH 8.0.

Remarks: This soil is similar to that described at pit 45,05,P,a (Grabe), but has contrasting soil material within 40" of the surface. Before the New System of Soil Classification went into effect, this soil would have been classed as a deep phase of Grabe gravelly sandy loam.

[1] Depth to the IIC3 horizon ranges from 36 to 40 inches in the pit.

[2] Thin strata of sand, gravelly sandy loam, and gravelly sand are present in this horizon.

UNNAMED "09" GRAVELLY SANDY LOAM (45,05,P,b)

```
      WEIGHT  PERCENT  AND  VOLUME  PERCENT  OF  WATER  RETAINED

IDENTIFICATION        T E N S I O N S  (BARS)
                                                                 BD        TP       K
45   5   1   2      .1        .3        .6        3.        15.      G/CC      PCT    IN/HR

     DEPTH                                                           3
      0            14.77     10.05      8.68      7.27      6.82     1.54     41.89
                   22.74     15.47     13.36     11.19     10.50
                   FRAGMENT                        SIEVED   6.53ROCK PERCENT 32.45
                                                                     3
      1            14.33     10.34      8.85      7.64      6.67     1.64     38.11
                   23.50     16.95     14.51     12.52     10.93
                   FRAGMENT                        SIEVED   6.72ROCK PERCENT 45.44
                                                                     1
      8            14.55     11.20     10.44      8.84      6.47     1.56     41.13     3.96
                   22.69     17.47     16.28     13.79     10.09     1.66     37.36     1.60
                   FRAGMENT   9.85                 SIEVED  12.88ROCK PERCENT 40.60
                                                                     3
     24            11.18      9.27      8.20      8.14      7.27     1.65     37.74
                   18.44     15.29     13.53     13.43     11.99
                   FRAGMENT                        SIEVED   7.17ROCK PERCENT  4.12
                                                                     3
     36             9.02      8.69      7.14      6.13      5.52     1.64     38.11
                   14.79     14.25     11.70     10.05      9.05
                   FRAGMENT                        SIEVED  10.06ROCK PERCENT 52.17

      1=FIST
      2=CORE
      3=LOOSE
```

UNNAMED "10" GRAVELLY SANDY LOAM (45,06,P,a)

Location: Western Graham Co. area, Smith Watershed; 2200'S, 750' E of NW cor. Sec. 17, T7S, R23E, (SW of rain gauge, W side of trail).
Vegetation and land use: Fluffgrass, annual grasses, creosote, yucca, annual weeds.
Topography: Nearly level, ridge top of dissected alluvial fan or terrace. Nearly level or level (4%) convex (A) slopes, elev. 3775'.
Drainage: Medium drainage on surface; well drained internally.
Parent Material: Alluvium from gneiss, granite and limestone.
Described and sampled by: Fred Gelderman and G. A. Schumaker

Horizon	Description
A1	0 to 1-1/2 inch. Brown (10YR 5/3) gravelly sandy loam, dark brown (10YR 3/3) when moist; weak medium platy structure; weakly coherent, very friable, slightly sticky, slightly plastic; plentiful very fine roots; few very fine and fine tubular and common very fine and fine interstitial pores; slightly effervescent; moderately alkaline, pH 8.0; abrupt smooth boundary.
C1	1-1/2 to 10 inches. Brown (10YR 5/3) heavy sandy loam, dark brown (10YR 4/3) when moist; massive; slightly hard, friable, slightly sticky, slightly plastic; abundant very fine roots; few very fine and fine tubular and few very fine and fine interstitial pores; slightly effervescent; moderately alkaline, pH 8.0; abrupt smooth boundary.
IIC2	10 to 17 inches. Brown (10YR 5/3) heavy gravelly sandy loam, dark brown (10YR 4/3) when moist; massive; slightly hard, friable, slightly sticky, slightly plastic; plentiful very fine and fine and few medium roots; few very fine and fine tubular and interstitial pores; violently effervescent; moderately alkaline, pH 8.0; clear smooth boundary.
IIIC3	17 to 26 inches. Light brownish gray (10YR 6/2) very gravelly and cobbly sandy loam, dark brown (10YR 4/3) when moist; massive; slightly hard, friable, slightly sticky, nonplastic; few very fine, fine and medium roots; few very fine and fine tubular pores; violently effervescent; moderately alkaline, pH 8.0; abrupt wavy boundary.
IVC4	26 to 32 inches. Light yellowish brown (10YR 6/4) sandy loam, yellowish brown (10YR 5/4) when moist; thin (½") strata of white (N8/) dry and (10YR 8/1) moist at top and bottom of horizon is a zone of calcium accumulation. Entire horizon contains few fine soft lime segregations. Massive; slightly hard, friable, nonsticky, nonplastic; few very fine and fine roots; few very fine and fine tubular and few very fine and fine interstitial pores; violently effervescent; moderately alkaline, pH 8.0; discontinuous horizon with abrupt smooth boundary where present.
VC5	32 to 48 inches plus. Very pale brown (10YR 7/3) very gravelly and cobbly loamy sand, yellowish brown (10YR 5/4) when moist, segregations of white (8/2) lime; massive; weakly coherent, very friable, nonsticky, nonplastic; very few very fine and fine roots; very few very fine tubular pores; violently effervescent; moderately alkaline, pH 8.0.

Remarks: This soil is similar to the soils of the Rillito series as described in Pima County, Arizona.

UNNAMED "10" GRAVELLY SANDY LOAM (45,06,P,a)

```
      WEIGHT  PERCENT  AND  VOLUME  PERCENT  OF  WATER  RETAINED

IDENTIFICATION        T E N S I O N S  (BARS)
                                                            BD       TP        K
45   6   1   1     .1       .3       .6       3.       15.      G/CC     PCT     IN/HR

     DEPTH                                                        3
      0            16.60    10.30     8.14     7.51     5.23     1.54     41.89
                   25.56    15.86    12.53    11.56     8.05
                   FRAGMENT                     SIEVED  6.30ROCK PERCENT 43.13
                                                                  1
      1            15.06    12.29     8.87     7.94     6.60     1.62     38.87     4.41
                   24.39    19.90    14.36    12.86    10.69     1.74     34.34     2.24
                   FRAGMENT 12.78               SIEVED  7.83ROCK PERCENT 38.35
                                                                  3
     10            14.71    12.69    11.63    10.20     7.84     1.55     41.51
                   22.80    19.66    18.02    15.81    12.15
                   FRAGMENT                     SIEVED  8.05ROCK PERCENT 24.33
                                                                  3
     17            13.22    10.15     9.25     8.33     7.46     1.51     43.02
                   19.96    15.32    13.96    12.57    11.26
                   FRAGMENT                     SIEVED  9.69ROCK PERCENT 55.23
                                                                  3
     26            17.44    14.17    11.11    10.03     6.65     1.49     43.77
                   25.98    21.11    16.55    14.94     9.90
                   FRAGMENT                     SIEVED 10.80ROCK PERCENT 19.02

      1=FIST
      2=CORE
      3=LOOSE
```

UNNAMED "10x" GRAVELLY SANDY LOAM (45,06,P,b)

Location: Western Graham Co. area, Smith Watershed; 660' N, 330' W of SE cor. Sec. 7, T7S, R23E (E side Tripp Canyon Rd., W side of watershed).
Vegetation and land use: Creosote, annuals, weeds and grasses, yucca, few mesquite.
Topography: Nearly level top of ridge dissected from terrace by intermittent drainages. Nearly level or level (2%) slopes, convex (A). Elev. 3730'.
Drainage: Medium drainage on surface; well drained internally.
Parent Material: Alluvium from granitic, acid igneous rocks, and limestone.
Described and sampled by: Fred Gelderman and G. A. Schumaker

Horizon	Description
A1	0 to 4 inches. Brown (10YR 5/3) gravelly sandy loam, dark brown (10YR 4/3) when moist; moderate fine and medium platy structure; weakly coherent, friable, nonsticky, nonplastic; plentiful very fine and fine roots; few very fine and fine tubular and common very fine tubular pores; strongly effervescent; moderately alkaline, pH 8.0; abrupt smooth boundary.
C1	4 to 12 inches. Brown (10YR 5/3) sandy loam, dark brown (10YR 4/3) when moist, with few fine thin veins of white (N8/) that are not apparent when moist; massive; slightly hard, friable, non-sticky, nonplastic; plentiful very fine, fine and medium roots; common very fine and fine, few medium tubular pores; strongly effervescent; moderately alkaline, pH 8.0; clear smooth boundary.
IIC2	12 to 26 inches. Brown (10YR 5/3) gravelly sandy clay loam, brown (7.5YR 4/4) moist, with common medium distinct mottles of white (10YR 8/1) and strong brown (7.5YR 5/6) that are light brown (7.5YR 6/4) and reddish brown (5YR 4/4) when moist; massive; hard, friable, slightly sticky, slightly plastic; few very fine and fine and plentiful medium roots; common very fine and fine tubular, few medium tubular pores; strongly effervescent; moderately alkaline, pH 8.0; clear wavy boundary.
IIIC3	26 to 31 inches. Light yellowish brown (10YR 6/4) gravelly sandy loam, with many medium distinct mottles of light gray (10YR 7/2) and reddish yellow (7.5YR 6/8) that are dark brown (10YR 4/3) and strong brown (7.5YR 5/6) when moist; massive; slightly hard, very friable, slightly sticky, slightly plastic; few very fine and fine and few medium roots; plentiful very fine tubular, few fine tubular and few very fine interstitial pores; strongly effervescent; moderately alkaline, pH 8.0; abrupt wavy boundary.
IVC4ca	31 to 46 inches plus. White (N8/) weakly cemented lime pan, breaks down to gravelly and cobbly loamy sand, light gray (N/7) and gray (N/6) when moist; massive; hard, friable, nonsticky, nonplastic; very few very fine interstitial pores; violently effervescent; moderately alkaline, pH 8.0.

Remarks: Similar to, but finer-textured than Whitlock and Rillito soils.

UNNAMED "10x" GRAVELLY SANDY LOAM (45,06,P,b)

```
     WEIGHT  PERCENT  AND  VOLUME  PERCENT  OF  WATER  RETAINED

IDENTIFICATION       T E N S I O N S  (BARS)
                                                                  BD         TP        K
45   6   1   2     .1        .3        .6        3.        15.      G/CC       PCT     IN/HR

    DEPTH                                                            3
     0             15.31     10.32      9.57      7.27     5.60     1.59      40.00
                   24.34     16.40     15.21     11.55     8.90
                   FRAGMENT                      SIEVED   5.71ROCK PERCENT  23.17
                                                                     1
     9             16.72     12.88     10.41      9.61     6.97     1.56      41.13     2.30
                   26.08     20.09     16.23     14.99    10.87     1.67      36.98     2.29
                   FRAGMENT  12.30                SIEVED   7.23ROCK PERCENT  30.70
                                                                     1
    12             18.91     14.98     14.21     12.33    10.00     1.46      44.91     2.11
                   27.60     21.87     20.74     18.00    14.60     1.65      37.74     2.51
                   FRAGMENT  14.61                SIEVED  10.13ROCK PERCENT  61.32
                                                                     3
    26             17.37     13.38     11.18      9.73     7.92     1.47      44.53
                   25.53     19.66     16.43     14.30    11.64
                   FRAGMENT                      SIEVED   8.01ROCK PERCENT   4.92
                                                                     3
    31             11.37      9.16      7.09      6.66     5.93     1.50      43.40
                   17.05     13.74     10.63      9.99     8.89
                   FRAGMENT                      SIEVED   5.72ROCK PERCENT  28.40


       1=FIST
       2=CORE
       3=LOOSE
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CONTINENTAL GRAVELLY SANDY LOAM (45,07,P,a)

Location: Western Graham Co. area, Smith Watershed; 400' S, 2400' E of NW cor. Sec. 17, T7S, R23E (E of rain gauge across trail).
Vegetation and land use: Annuals, creosote, snakeweed, whitethorn, wolfberry.
Topography: Nearly level, flattened ridge top, dissected from old terrace by intermittent drainage. Nearly level or level (3%) slopes, convex. Elev. 3720'.
Drainage: Surface drainage is medium to rapid; well drained internally. Ground water is deep.
Parent Material: Alluvium, principally from granitic acid igneous rocks and from limestone.
Described and sampled by: Fred Gelderman and G. A. Schumaker

Horizon	Description
A1	0 to 2 inches. Dark brown (7.5YR 4/4) gravelly sandy loam, dark reddish brown (5YR 3/4) when moist; moderate fine and medium platy breaking to moderate fine and medium granular structure; weakly coherent, very friable, nonsticky, nonplastic; abundant very fine roots; few very fine tubular and common very fine and fine interstitial pores; neutral, pH 7.0; abrupt smooth boundary.
B21t	2 to 7 inches. Reddish brown (5YR 4/4) clay loam with yellowish red (5YR 4/6) clay films, dark reddish brown (5YR 3/4) and yellowish red (5YR 4/6) when moist; moderate medium and coarse subangular blocky structure; slightly hard, very friable, sticky, plastic; plentiful very fine and fine roots; common very fine and fine tubular and few very fine and fine interstitial pores; few thin clay films on ped faces; mildly alkaline, pH 7.5; abrupt smooth boundary.
B22t	7 to 12 inches. Yellowish red (5YR 4/6) clay, with films of dark red (2.5YR 3/6), yellowish red (5YR 4/6) and dark red (2.5YR 3/6) when moist; moderate medium prismatic breaking to moderate fine and medium subangular blocky structure; hard, firm, sticky, plastic; plentiful very fine and fine and few medium roots; few very fine and fine tubular and common very fine and fine interstitial pores; common thin clay films on ped faces, and in tubular pores; moderately alkaline, pH 8.0; abrupt smooth boundary.
B23tca	12 to 18 inches. Reddish brown (5YR 4/4) light gravelly clay, yellowish red (5YR 4/6) moist, with common fine and medium distinct mottles, dark red (2.5YR 3/6) mottles and pinkish gray (5YR 7/2) lime veining, dark red (2.5YR 3/6) and reddish brown (5YR 5/4) when moist; moderate fine and medium subangular blocky structure; hard, firm, sticky, plastic; few very fine and fine and medium roots; common very fine and fine tubular and few very fine and fine interstitial pores; few thin clay films on ped faces, and in tubular pores; strongly effervescent, moderately alkaline, pH 8.0; clear wavy boundary.
IIB3ca	18 to 27 inches. Reddish brown (5YR 4/4) very gravelly and cobbly clay loam, yellowish red (5YR 4/6) when moist, with common fine distinct mottles of dark red (2.5YR 3/6) and lime veins of pinkish gray (5YR 7/2), dark red (2.5YR 3/6) when moist, veins are not apparent when moist; moderate fine subangular blocky structure, rock controlled; slightly hard, friable, sticky and slightly plastic; few very fine and fine roots; few very fine and fine tubular and common very fine and fine interstitial pores; very few thin clay films on ped faces; violently effervescent; moderately alkaline, pH 8.0; clear wavy boundary.
IIC1ca	27 to 32 inches. Yellowish red (5YR 4/6) dry and moist, very gravelly and cobbly sandy loam, with few fine veins of white (5YR 8/1), both dry and moist, lime around roots and pores; massive; hard, friable, weakly coherent and nonplastic; very few very fine roots; very few very fine tubular and common very fine and fine interstitial pores; violently effervescent; moderately alkaline, pH 8.0; abrupt wavy boundary.
IIIC2ca	32 to 39 inches plus. Pink (7.5YR 7/4) gravelly and cobbly sandy loam, reddish yellow (7.5YR 6/6) when moist, with few fine distinct mottles of strong brown (7.5YR 5/6) and pinkish white (7.5YR 8/2), yellowish red (5YR 5/8) when moist; massive; hard, very firm, weakly coherent and nonplastic; very few very fine interstitial pores; violently effervescent; moderately alkaline, pH 8.0.

Remarks: Various red to white strata of gravelly and very gravelly and cobbly sandy loams to clay loams, all calcareous, are below the weakly cemented IIIC2ca horizon which is as thin as 2 in. in places.

CONTINENTAL GRAVELLY SANDY LOAM (45,07,P,a)

```
      WEIGHT  PERCENT  AND  VOLUME  PERCENT  OF  WATER  RETAINED

IDENTIFICATION        T E N S I O N S  (BARS)
                                                                 BD       TP        K
45   7   1   1     .1        .3        .6        3.        15.       G/CC     PCT     IN/HR

      DEPTH                                                            3
        0          11.40     8.84      7.10      5.20      4.24       .65     75.47
                    7.41     5.74      4.61      3.38      2.75
                   FRAGMENT                       SIEVED   4.48ROCK PERCENT 25.44
                                                                       1
        2          17.20    14.52     14.02     10.45      7.75      1.71     35.47     1.15
                   29.41    24.82     23.97     17.86     13.25      1.83     30.94     1.56
                   FRAGMENT 12.39                 SIEVED   9.69ROCK PERCENT 27.63
                                                                       1
        7          27.10    22.81     21.46     19.51      6.52      1.47     44.53      .93
                   39.83    33.53     31.54     28.67      9.58      1.72     35.09      .95
                   FRAGMENT 20.59                 SIEVED 14.52ROCK PERCENT 11.76
                                                        (16.33)        1
       12          27.69    22.88     22.11     21.94     18.12      1.50     43.40     1.44
                   41.53    34.32     33.16     32.91     27.18      1.72     35.09      0
                   FRAGMENT 21.97                 SIEVED 19.85ROCK PERCENT 34.74
                                                                       3
       18          16.52    13.51     12.71     12.15      9.55      1.45     45.28
                   23.95    19.58     18.42     17.61     13.84
                   FRAGMENT                       SIEVED 23.05ROCK PERCENT 59.36
                                                                       3
       27          11.17     8.47      7.83      7.37      6.55      1.74     34.34
                   19.43    14.73     13.62     12.82     11.39
                   FRAGMENT                       SIEVED 18.60ROCK PERCENT 56.35
                                                                       3
       32          10.50     8.74      7.29      6.10      6.63      1.66     37.36
                   17.43    14.50     12.10     10.12     11.00
                   FRAGMENT                       SIEVED 13.87ROCK PERCENT 63.40

       1=FIST
       2=CORE
       3=LOOSE
```

CONTINENTAL GRAVELLY SANDY LOAM (45,07,P,b)

Location: Western Graham Co. area, Smith Watershed; 1000' S, 2000' E of NW cor. Sec. 17, T7S, R23E, (S of rain gauge and W of trail).
Vegetation and land use: Annuals, mesquite, snakeweed.
Topography: Nearly level top of ridge that was formed from an old terrace by dissecting drainages. Slopes are nearly level or level (2%) and convex (A). Elev. 3740'.
Drainage: Surface has medium to rapid drainage; well drained internally. Ground water is deep.
Parent Material: Alluvium principally from granitic, acid igneous rocks and limestone.
Described and sampled by: Fred Gelderman and G. A. Schumaker

Horizon	Description
A11	0 to 4 inches. Reddish brown (5YR 4/4) gravelly sandy loam, dark reddish brown (5YR 3/4) when moist; few fine distinct mottles of yellowish red (5YR 5/6), yellowish red (5YR 4/6) when moist; moderate medium platy breaking to moderate fine granular structure; weakly coherent, very friable, nonsticky and nonplastic; plentiful very fine and fine roots; few very fine and fine tubular and common very fine and fine interstitial pores; neutral, pH 8.0; abrupt smooth boundary.
A12	4 to 10 inches. Reddish brown (5YR 4/4) gravelly loam, dark reddish brown (5YR 3/4) when moist; moderate fine granular structure; weakly coherent, very friable, slightly sticky and slightly plastic; plentiful very fine and fine and few medium roots; common very fine tubular and few very fine and fine interstitial pores; few thin oriented clay bridges holding mineral grains together; mildly alkaline, pH 7.8; abrupt smooth boundary.
B21t	10 to 16 inches. Reddish brown (2.5YR 4/4) gravelly clay, yellowish red (5YR 4/6) crushed, dark red (2.5YR 3/6) crushed and uncrushed when moist; moderate fine and medium prismatic breaking to moderate fine and medium subangular blocky structure; hard, firm, sticky and plastic; few very fine and fine and few medium roots; few very fine and fine tubular and few very fine interstitial pores; few thin clay films on ped faces and in tubular pores; moderately alkaline, pH 8.0; clear irregular boundary.
B22tca	16 to 24 inches. Red (2.5YR 4/6) light gravelly clay, dark red (2.5YR 3/6) moist, with common fine distinct mottles of yellowish red (5YR 4/6) and lime veins of pinkish white (5YR 8/2), reddish brown (5YR 4/4) and pink (5YR 8/4) when moist; moderate fine prismatic breaking to moderate fine and medium subangular blocky structure; hard, friable, slightly sticky and plastic; very few very fine and fine roots; very few very fine tubular and few very fine interstitial pores; common thin clay films on ped faces, and in tubular pores; slightly effervescent, moderately alkaline, pH 8.0; abrupt wavy boundary.
B3ca	24 to 28 inches. Yellowish red (5YR 4/6) both dry and moist, gravelly and cobbly clay loam, with common fine distinct mottles of brown (7.5YR 5/4) and pinkish white (5YR 8/2) lime veins, dark brown (7.5YR 4/4) and pink (7.5YR 7/4) when moist; massive; hard, very friable, slightly sticky and slightly plastic; very few very fine and fine roots; few very fine tubular and common very fine and fine interstitial pores; very few thin clay films on ped faces; strongly effervescent, moderately alkaline, pH 8.0; abrupt smooth boundary.
IICca	28 to 33 inches plus. Pink (7.5YR 8/4) gravelly and cobbly weakly cemented limepan, reddish yellow (7.5YR 7/6) when moist, with thin strata showing common medium faint mottles of reddish yellow (7.5YR 7/6) and reddish yellow (5YR 6/8), reddish yellow (7.5YR 6/6) and yellowish red (5YR 5/8) when moist; massive; very hard, very firm, very few very fine interstitial pores; violently effervescent, moderately alkaline, pH 8.0.

Remarks: The undersides of the few cobbles and gravel in the upper part of the B22tca horizon are lime coated. Those in the lower part and in the lower horizons have entire thin lime coatings.

CONTINENTAL GRAVELLY SANDY LOAM (45,07,P,b)

```
      WEIGHT  PERCENT  AND  VOLUME  PERCENT  OF  WATER  RETAINED

IDENTIFICATION        T E N S I O N S  (BARS)
                                                                 BD        TP
45   7   1   2     .1         .3         .6         3.         15.       G/CC      PCT

     DEPTH                                                                 3
       0          14.53       9.42       8.39       6.55       5.37      1.61      39.25
                  23.39      15.16      13.50      10.54       8.64
                  FRAGMENT                           SIEVED  10.19ROCK PERCENT  24.15
                                                                           3
       4          15.54      13.32      12.49       9.59       7.98      1.49      43.77
                  23.15      19.84      18.61      14.28      11.89
                  FRAGMENT                           SIEVED   9.09ROCK PERCENT  32.12
                                                                           1
      10          20.08      17.87      16.01      15.78      12.75      1.54      41.89
                  30.92      27.51      24.65      24.30      19.63      1.77      33.21
                  FRAGMENT 17.70                     SIEVED  14.40ROCK PERCENT  34.58
                                                                           1
      16          28.32      26.52      24.03      22.09      21.05      1.51      43.02
                  42.76      40.04      36.28      33.35      31.78      1.72      35.09
                  FRAGMENT 24.20                     SIEVED  22.18ROCK PERCENT  17.77
                                                                           3
      24          21.30      19.15      18.35      15.76      15.19      1.33      49.81
                  28.32      25.46      24.40      20.96      20.20
                  FRAGMENT                           SIEVED  17.46ROCK PERCENT  46.54
                                                                           3
      28          17.30      14.61      13.45      13.10      11.58      1.12      57.74
                  19.37      16.36      15.06      14.67      12.96
                  FRAGMENT                           SIEVED  12.03ROCK PERCENT  31.94

      1=FIST
      2=CORE
      3=LOOSE
```

UNNAMED "12" STONY SANDY LOAM (45,08,P,a)

Location: Western Graham Co. area, Smith Watershed; 500' N, 450' E of SW cor. Sec. 18, T7S, R23E (½+ mi. S of rain gauge, E of road).

Vegetation and land use: Tangleweed, slender grama, curly mesquite, paloverde, snakeweed.

Topography: Side of ridge that is remnant of high terrace below rock hills. Moderately sloping (C) slopes. Slopes are 25% and convex. Elev. 4190'.

Drainage: Rapid drainage on surface, well drained internally. Moderately slow to slow permeability. Ground water is deep.

Parent Material: Alluvium from or colluvium from granitic gneiss.

Described and sampled by: Fred Gelderman and G. A. Schumaker

Horizon	Description
A1	0 to 2 inches. Brown (7.5YR 4/4) very stony and cobbly sandy loam, dark brown (7.5YR 3/2) when moist; weak medium platy structure; weakly coherent, very friable, nonsticky and nonplastic; plentiful very fine and fine roots; few very fine and fine tubular and common very fine and fine interstitial pores; strongly acid, pH 5.5; abrupt smooth boundary.
B1	2 to 7-1/2 inches. Dark reddish brown (5YR 3/3) very gravelly and cobbly loam, moist; moderate fine and medium granular structure; friable, slightly sticky, slightly plastic; abundant very fine and fine and plentiful medium and coarse roots; common very fine and fine tubular and common very fine and fine interstitial pores; medium acid, pH 6.0; abrupt smooth boundary.
B2t	7-1/2 to 18 inches. Dark reddish brown (2.5YR 3/4) very gravelly and cobbly clay, moist; moderate fine and medium subangular blocky structure, rock controlled; firm, sticky and plastic; plentiful very fine and fine and few medium and coarse roots; very few very fine and fine tubular and few very fine and fine interstitial pores; few thin clay films on ped faces, oriented clay as bridges holding mineral grains together; slightly acid, pH 7.0; abrupt wavy boundary.
	18 to 21 inches (hard rock)[1]. Weathering, dark gray granitic gneiss boulder.

Remarks: The surface 7" has about 1% or more organic matter. Stones, gravel, and cobble make up slightly more than 50% of the soil volume.

[1] This is probably not "R" material at this location. The road cut about ½ mi. N shows many gravels, cobble, and stones in the underlying material which becomes limey at depths ranging from 2 to 5 feet.

UNNAMED "12" STONY SANDY LOAM (45,08,P,a)

```
       WEIGHT  PERCENT  AND  VOLUME  PERCENT  OF  WATER  RETAINED

IDENTIFICATION        T E N S I O N S  (BARS)
                                                                    BD        TP
45   8   1   1      .1         .3         .6         3.         15.       G/CC      PCT

     DEPTH                                                                   3
       0           12.66       7.46       5.05       4.92       3.44       1.68      36.60
                   21.26      12.53       8.48       8.26       5.77
                   FRAGMENT                           SIEVED    8.73ROCK PERCENT 41.81
                                                                             3
       2           10.25       7.36       6.30       5.73       3.52       1.63      38.49
                   16.70      11.99      10.26       9.33       5.73
                   FRAGMENT                           SIEVED    9.79ROCK PERCENT 40.65
                                                                             3
       7           19.58      15.02      14.40      13.27       8.68       1.41      46.79
                   27.60      21.17      20.30      18.71      12.23
                   FRAGMENT                           SIEVED   10.15ROCK PERCENT 39.87

       1=FIST
       2=CORE
       3=LOOSE
```

UNNAMED "12" COBBLY SANDY LOAM (45,08,P,b)

Location: Western Graham Co. area, Smith Watershed; 600' S, 1000' W of NE cor. Sec. 24, T7S, R22E (3/4 mi. SE of rain gauge, E of road).
Vegetation and land use: Sideoats, snakeweed, tanglehead, curly mesquite, mesquite, Agave sp., three-awns, cholla.
Topography: Sloping side of ridge that is a remnant of an old upper terrace. Slopes are moderately sloping (C), and convex. Elev. 4250'.
Drainage: Rapid drainage on surface; well drained internally. Moderately slow to slow permeability. Ground water is deep.
Parent Material: Alluvium from and including rocks of granitic gneiss.
Described and sampled by: Fred Gelderman and G. A. Schumaker

Horizon	Description
A1	0 to 2 inches. Dark brown (7.5YR 4/4) very cobbly and stony sandy loam, dark brown (7.5YR 3/2) when moist; moderate medium platy structure; weakly coherent, very friable, nonsticky and nonplastic; plentiful very fine and fine roots; few very fine and fine tubular and common very fine and fine interstitial pores; medium acid, pH 6.0; abrupt smooth boundary.
B1	2 to 7 inches. Dark reddish brown (5YR 3/3) dry and moist, very gravelly and cobbly clay loam; moderate fine and medium granular structure; slightly hard, friable, slightly sticky and slightly plastic; plentiful very fine and fine and few medium and coarse roots; few very fine and fine tubular and common very fine and fine interstitial pores; slightly acid, pH 6.5; abrupt smooth boundary.
B2t	7 to 21 inches plus. Dark reddish brown (2.5YR 3/4) very gravelly and cobbly clay, moist; moderate fine and medium subangular blocky structure, rock controlled; firm, sticky and plastic; few very fine and fine roots, few medium roots; few very fine and fine tubular and few very fine and fine interstitial pores; common thin clay films on ped faces, oriented clay bridges holding mineral grains together; neutral, pH 7.0.

Remarks: Gravel, cobble, and stones make slightly more than 50% of the soil volume and are weathering in the soil mass. The organic matter content is above 1%.

UNNAMED "12" COBBLY SANDY LOAM (45,08,P,b)

```
        WEIGHT  PERCENT  AND  VOLUME  PERCENT  OF  WATER  RETAINED

IDENTIFICATION        T E N S I O N S  (BARS)
                                                                   BD        TP
45   8   1   2      •1        •3        •6        3•        15•      G/CC      PCT

     DEPTH                                                              3
       0           16•88      9•03      7•01     6•46      5•30     1•53    42•26
                   25•82     13•81     10•72     9•88      8•10
                   FRAGMENT                       SIEVED   4•45ROCK PERCENT 70•81
                                                                        3
       2           13•80      9•95      9•33     7•90      6•05     1•51    43•02
                   20•83     15•02     14•08    11•92      9•13
                   FRAGMENT                       SIEVED   4•54ROCK PERCENT 47•09
                                                                        3
       7           25•00     22•64     20•09    19•31      7•68*    1•31    50•57
                   32•75     29•65     26•31    25•29     10•06
                   FRAGMENT                       SIEVED 17•64ROCK PERCENT 29•89
                                                       *RERUN AS 18.27

      1=FIST
      2=CORE
      3=LOOSE
```

BILLINGS SILT LOAM (47,01,P,a and b)

Location: Montano Grant Watershed III, 310' W of road curve to weir.
Vegetation and land use: Alkali sacaton and Russian thistle
Topography: Sloping
Drainage: Hydrologic C
Parent Material: Shale and sandstone
Described and sampled by: C. H. Diebold and G. A. Schumaker

Horizon	Description
Pit a	
A1	0 to 9 inches. Light olive brown (2.5Y 5/4) heavy silt loam; weak coarse subangular blocky to weak fine angular blocky structure; slightly hard, friable when moist, slightly sticky and slightly plastic wet; pH 8.2; strongly calcareous; low salt; slowly permeable; abundant roots; clear smooth boundary.
C1	9 to 22 inches. Light olive brown (2.5Y 5/4) silty clay loam, olive brown (2.5Y 4/4) moist; weak coarse subangular blocky structure; slightly hard, friable when moist, sticky and slightly plastic when wet; pH 8.2; strongly calcareous; moderate salt; slowly permeable; abundant roots; clear smooth boundary.
C2sa	22 to 48 inches plus. Light olive brown (2.5Y 5/4) heavy silty clay loam, olive brown (2.5Y 4/4) moist; 30% C; moderate fine subangular blocky structure; hard, firm when moist, sticky and slightly plastic when wet; pH 8.2; strongly calcareous; high salt; slowly permeable; abundant roots.
Pit b	
A1	0 to 6 inches. Light yellowish brown (2.5Y 6/4), olive brown (2.5Y 4/4) moist, silt loam; fine angular blocky structure; slightly hard when dry, very friable moist, slightly sticky and slightly plastic wet; slightly calcareous; slowly permeable; abundant roots; clear smooth boundary.
C1	6 to 17 inches. Light olive brown (2.5Y 5/4) clay loam, olive brown (2.5Y 4/4) when moist; weak coarse subangular blocky structure; slightly hard, friable when moist, slightly sticky and slightly plastic when wet; slightly calcareous; slowly permeable; abundant roots; clear smooth boundary.
C2sa	17 to 44 inches. Light olive brown (2.5Y 5/4) clay loam; olive brown (2.5Y 4/4) when moist; weak coarse subangular blocky structure; slightly hard, friable when moist, slightly sticky and slightly plastic when wet; strongly calcareous; slowly permeable; abundant roots; gradual smooth boundary.
C3	44 to 60 inches plus. Light olive brown (2.5Y 5/4) clay loam, olive brown (2.5Y 4/4) when moist; weak coarse subangular blocky structure; slightly hard, friable when moist, slightly sticky and slightly plastic when wet; slightly calcareous; slowly permeable; abundant roots.

BILLINGS SILT LOAM (47,01,P,a and b)

```
        WEIGHT  PERCENT  AND  VOLUME  PERCENT  OF  WATER  RETAINED

IDENTIFICATION          T E N S I O N S  (BARS)
                                                                          BD        TP        K
47    1    1    1      .1        .3        .6        3.        15.        G/CC      PCT      IN/HR

     DEPTH                                                                  1
       0              30.73     19.99     17.25     14.28     11.94      1.32     50.19       .78
                      40.56     26.38     22.77     18.84     15.76      1.42     46.42       .32
                      FRAGMENT  20.22                SIEVED    7.78ROCK  PERCENT   6.71
                                                                            1
       9              35.88     22.91     20.20     17.20     13.17      1.25     52.83      1.00
                      44.85     28.63     25.25     21.50     16.46      1.41     46.79      3.16
                      FRAGMENT  22.65                SIEVED   12.28ROCK  PERCENT
                                                                            1
      22              34.06     23.01     21.46     18.71     13.60      1.23     53.58      1.31
                      41.89     28.30     26.39     23.01     16.72      1.42     46.42      1.37
                      FRAGMENT  23.73                SIEVED   13.01ROCK  PERCENT


IDENTIFICATION          T E N S I O N S  (BARS)
                                                                          BD        TP        K
47    1    1    2      .1        .3        .6        3.        15.        G/CC      PCT      IN/HR

     DEPTH                                                                  3
       0              25.00     15.18     13.30     11.48      8.08      1.32     50.19      1.42
                      33.00     20.03     17.55     15.15     10.66                          2.33
                      FRAGMENT                       SIEVED   10.01ROCK  PERCENT    .86
                                                                            1
       6              28.30     17.27     14.83     11.42      9.09      1.30     50.94      4.44
                      36.79     22.45     19.27     14.84     11.81      1.42     46.42      2.78
                      FRAGMENT  18.58                SIEVED   11.24ROCK  PERCENT   1.08
                                                                            1
      17              32.55     18.93     18.77     11.85      8.65      1.30     50.94      2.54
                      42.31     24.60     24.40     15.40     11.24      1.41     46.79      2.60
                      FRAGMENT  18.73                SIEVED    9.94ROCK  PERCENT   5.82

        1=FIST
        2=CORE
        3=LOOSE
```

CHACRA SANDY CLAY LOAM (47,02,P,a and b)

Location: Montano Grant Watershed III; Pit a 50' W of road, 640' N of cattleguard; Pit b 120' W of road, 55' N of cattleguard.
Vegetation and land use: Galleta, winterfat, Russian thistle
Topography: Mesa
Drainage: Hydrologic B
Parent Material: Aeolian and residual from sandstone and shale
Described and sampled by: C. H. Diebold and G. A. Schumaker

Horizon	Description
Pit a	
A1	0 to 6 inches. Pale brown (10YR 6/3) sandy clay loam, dark brown (10YR 4/3) moist; weak fine subangular blocky structure; slightly hard, friable when moist, slightly sticky and slightly plastic wet; violently calcareous; permeable; abundant roots; clear smooth boundary.
B2	6 to 19 inches. Yellowish brown (10YR 5/4) clay loam, dark yellowish brown (10YR 4/4) moist; moderate medium subangular blocky structure; hard when dry, firm when moist, slightly sticky and slightly plastic wet; patchy clay films; strongly calcareous, common nodules; slowly permeable; abundant roots; clear smooth boundary.
B3	19 to 28 inches. Olive brown (2.5Y 4/4) clay loam; weak medium subangular blocky structure; hard when dry, firm when moist, slightly sticky and slightly plastic when wet; patchy clay films; strongly calcareous; slowly permeable; few roots; clear smooth boundary.
R	28 to 36 inches plus. Fractured thin stratified loamstone and shale; few crystals of selenite; slightly calcareous; few roots.
Pit b	
A1	0 to 5 inches. Pale brown (10YR 6/3) heavy sandy clay loam, dark brown (10YR 4/3) moist; weak medium subangular blocky structure; slightly hard when dry, friable when moist; slightly sticky and slightly plastic when wet; strongly calcareous; permeable; abundant roots; clear smooth boundary.
B2	5 to 15 inches. Pale brown (10YR 6/3) clay loam, dark yellowish brown (10YR 4/4) moist; moderate subangular blocky structure; hard when dry, firm when moist, sticky and plastic when wet; patchy clay films; strongly calcareous; slowly permeable; abundant roots; gradual smooth boundary.
B3	15 to 24. Light olive brown (2.5Y 5/3) clay loam, olive brown (2.5Y 4/4) moist; moderate subangular blocky structure; hard when dry, firm when moist, sticky and plastic when wet; patchy clay films; strongly calcareous; slowly permeable; abundant roots; clear smooth boundary.
R	24 to 48 inches plus. Thin stratified partly weathered loam-stone and shale; violently calcareous.

CHACRA SANDY CLAY LOAM (47,02,P,a and b)

```
     WEIGHT  PERCENT  AND  VOLUME  PERCENT  OF  WATER  RETAINED

IDENTIFICATION        T E N S I O N S  (BARS)
                                                             BD       TP       K
47   2   1   1     .1        .3        .6        3.        15.      G/CC     PCT    IN/HR

     DEPTH                                                             1
      0            27.19     19.17     17.78     13.59     10.39     1.28     51.70     2.94
                   34.80     24.53     22.75     17.39     13.29     1.39     47.55     2.94
                   FRAGMENT  19.53                SIEVED   11.17ROCK PERCENT   2.12
                                                                        1
      6            33.16     25.53     21.24     17.52     13.33     1.26     52.45     4.36
                   41.78     32.16     26.76     22.07     16.79     1.37     48.30     1.93
                   FRAGMENT  24.83                SIEVED   14.37ROCK PERCENT  15.63
                                                                        1
     19            26.87     20.59     18.68     15.63     11.23     1.33     49.81      .62
                   35.73     27.38     24.84     20.78     14.93     1.48     44.15     1.92
                   FRAGMENT  20.93                SIEVED   11.48ROCK PERCENT   5.42
                                                                        3
     28            18.42     17.94     15.38     11.86     10.54     1.30     50.94
                   23.94     23.32     19.99     15.41     13.70
                   FRAGMENT                       SIEVED   12.28ROCK PERCENT  60.99


IDENTIFICATION        T E N S I O N S  (BARS)
                                                             BD       TP       K
47   2   1   2     .1        .3        .6        3.        15.      G/CC     PCT    IN/HR

     DEPTH                                                             1
      0            29.75     19.57     18.98     15.47     11.74     1.28     51.70     1.87
                   38.08     25.04     24.29     19.80     15.02     1.40     47.17     1.03
                   FRAGMENT  19.26                SIEVED   12.88ROCK PERCENT    .39
                                                                        1
      5            28.04     22.77     19.91     17.58     13.66     1.31     50.57     3.36
                   36.73     29.82     26.08     23.02     17.89     1.48     44.15     3.58
                   FRAGMENT  22.37                SIEVED   14.81ROCK PERCENT  11.56
                                                                        1
     15            28.27     22.72     22.06     17.50     12.09     1.46     44.91     1.22
                   41.27     33.17     32.20     25.55     17.65     1.58     40.38     1.97
                   FRAGMENT  22.65                SIEVED   14.64ROCK PERCENT  25.50
                                                                        3
     24            22.13     17.39     16.43     14.92      8.47     1.28     51.70
                   28.32     22.25     21.03     19.09     10.84
                   FRAGMENT                       SIEVED   10.11ROCK PERCENT  16.90

      1=FIST
      2=CORE
      3=LOOSE
```

CANONCITO CLAY LOAM (47,03,P,a and b)

Location: Montano Grant Watershed III; Pit a 710' SW of cattleguard, Pit b 1110' SW of cattleguard.
Vegetation and land use: Russian thistle, alkali sacaton, chamiza
Topography: Mesa
Drainage: Hydrologic C
Parent Material: Shale and sandstone
Described and sampled by: C. H. Diebold and G. A. Schumaker

Horizon	Description
Pit a	
A1	0 to 4 inches. Pale brown (10YR 6/3) clay loam, dark brown (10YR 4/3) moist; weak medium subangular blocky to weak fine angular blocky structure; slightly hard when dry, firm when moist; sticky and plastic when wet; noncalcareous; slowly permeable; abundant roots; clear smooth boundary.
B2	4 to 9 inches. Brown (10YR 5/3) clay, dark brown (10YR 4/3) moist; moderate medium angular blocky structure; very hard dry, firm when moist; sticky and plastic when wet; strong clay skins; noncalcareous; slowly permeable; abundant roots; clear smooth boundary.
B3	9 to 23 inches. Light olive brown (2.5Y 5/3) silty clay, olive brown (2.5Y 4/4) moist; moderate medium angular blocky structure; hard when dry, firm when moist, sticky and plastic when wet; patchy clay skins; violently calcareous, lime mottles common; slowly permeable; abundant roots; clear smooth boundary.
C1	23 to 31 inches. Partly weathered soft sandstone with interbedded shale, calcareous; few roots; abrupt smooth boundary.
R	31 to 42 inches plus. Sandstone and thin bedded shale; strongly calcareous; few roots.
Pit b	
A1	0 to 3 inches. Pale brown (10YR 6/3) heavy clay loam, dark brown (10YR 4/3) moist; weak fine angular blocky structure; soft, friable when moist, sticky and plastic when wet; noncalcareous; slowly permeable; abundant roots; clear wavy boundary.
B2	3 to 12 inches. Brown (10YR 5/3) clay, dark brown (10YR 4/3) moist; moderate medium angular blocky structure; hard, firm when moist, sticky and plastic when wet; strong clay skins; noncalcareous; slowly permeable; abundant roots; clear wavy boundary.
B3	12 to 25 inches. Brown (10YR 5/3) silty clay loam, dark brown (10YR 4/3) moist; moderate medium angular blocky structure; hard, firm when moist; slightly sticky and slightly plastic when wet; patchy clay skins; common mottles; slowly permeable; abundant roots; clear smooth boundary.
C1	25 to 39 inches. Thin bedded shales and sandstones; soft; violently calcareous; few roots.
R	39 to 60 inches plus. Thin fractured sandstone and shale; calcareous (variable).

CANONCITO CLAY LOAM (47,03,P,a and b)

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       WEIGHT  PERCENT  AND  VOLUME  PERCENT  OF  WATER  RETAINED

IDENTIFICATION        T E N S I O N S  (BARS)
                                                                  BD       TP       K
47   3   1   1     .1        .3        .6        3.        15.      G/CC     PCT     IN/HR

     DEPTH                                                              3
      0            28.72     21.78     21.50     11.90     11.03     1.09     58.87
                   31.30     23.74     23.43     12.97     12.02
                   FRAGMENT                        SIEVED 14.64ROCK PERCENT  4.01
                                                                        3
      4            28.74     23.07     22.51     19.23     16.48     1.10     58.49
                   31.61     25.37     24.76     21.15     18.12
                   FRAGMENT                        SIEVED 14.90ROCK PERCENT
                                                                        3
      9            28.91     23.65     22.15     19.63     15.04     1.33     49.81
                   38.45     31.45     29.45     26.10     20.00
                   FRAGMENT                        SIEVED 14.67ROCK PERCENT
                                                                        1
     23            21.94     12.65     11.57      9.48      7.27     1.44     45.66     1.39
                   31.59     18.21     16.66     13.65     10.46     1.53     42.26     2.62
                   FRAGMENT 12.07                  SIEVED  9.21ROCK PERCENT   .23
                                                                        3
     31            27.89     21.86     20.36     15.71     12.55     1.22     53.96
                   34.02     26.66     24.83     19.16     15.31
                   FRAGMENT                        SIEVED 10.39ROCK PERCENT  5.09


IDENTIFICATION        T E N S I O N S  (BARS)
                                                                  BD       TP       K
47   3   1   2     .1        .3        .6        3.        15.      G/CC     PCT     IN/HR

     DEPTH                                                              1
      0            26.69     17.34     16.19     13.29     10.90     1.41     46.79      .73
                   37.63     24.44     22.82     18.73     15.36     1.57     40.75     3.48
                   FRAGMENT 17.23                  SIEVED 13.56ROCK PERCENT  1.74
                                                                        3
      4            24.86     22.07     20.41     18.09     15.61     1.14     56.98
                   28.34     25.15     23.26     20.62     17.79
                   FRAGMENT                        SIEVED 13.39ROCK PERCENT
                                                                        1
     12            22.22     17.52     17.18     12.61      9.94     1.44     45.66     2.92
                   31.99     25.22     24.73     18.15     14.31     1.55     41.51     1.31
                   FRAGMENT 17.41                  SIEVED  9.42ROCK PERCENT  8.74
                                                                        1
     25            26.99     20.32     18.90     13.97     11.08     1.27     52.08     1.28
                   34.27     25.80     24.00     17.74     14.07     1.38     47.92     1.02
                   FRAGMENT 20.25                  SIEVED  9.87ROCK PERCENT 25.74
                                                                        3
     39            26.00     19.33     19.00     15.02     12.29     1.29     51.32
                   33.54     24.93     24.51     19.37     15.85
                   FRAGMENT                        SIEVED 14.38ROCK PERCENT 85.49


      1=FIST
      2=CORE
      3=LOOSE
```

PERSAYO SILTY CLAY (47,04,P,a and b)

Location: Pit a: Montano Grant Watershed II, 650' SW of flume.
Pit b: Montano Grant Watershed III, 588' NW of road to weir curve
Vegetation and land use: Alkali sacaton, Russian thistle, shrub
Topography: Hilly, 11% and 22% slopes, respectively.
Drainage: Hydrologic D
Parent Material: Mancos shale
Described and sampled by: C. H. Diebold and G. A. Schumaker

Horizon	Description
Pit a	
C1	0 to 5 inches. Light yellowish brown (2.5Y 6/4) clay, light olive brown (2.5Y 5/6) moist; strong fine angular blocky structure; soft, very friable when moist, sticky and plastic when wet; noncalcareous; high salt content; slowly permeable; abundant roots; gradual wavy boundary.
C2	5 to 21 inches[1]. Light olive brown (2.5Y 5/4) clay, olive brown (2.5Y 4/4) moist; strong fine angular blocky structure; soft, firm when moist, sticky and plastic when wet; noncalcareous; high salt content; very slowly permeable; abundant roots; gradual smooth boundary.
C3	21 to 30 inches plus[1]. Light yellowish brown (2.5Y 6/4) clay, olive brown (2.5Y 4/4) moist; mottled light olive brown (2.5Y 5/6); moderate angular blocky structure; soft, firm when moist, sticky and plastic when wet; noncalcareous; high salt content; very slowly permeable; few roots.
Pit b	
C1	0 to 3 inches. Yellowish brown (10YR 5/4) silty clay, light olive brown (2.5Y 5/4) moist; moderate fine angular blocky structure; soft, very friable when moist; sticky and plastic when wet; noncalcareous; high salt content; very slowly permeable; few roots; clear smooth boundary.
C2	3 to 27 inches[2]. Light olive brown (2.5Y 5/6) and dark grayish brown (2.5Y 4/2) silty clay; olive brown (2.5Y 4/4) moist; moderate fine angular blocky structure; soft, friable when moist, sticky and plastic when wet; noncalcareous; high salt content; very slowly permeable; few roots.
C3	27 to 30 inches. Less weathered soft shale.

[1] Stratification and thin fractured stratified soft shale with thin lens of selenite.

[2] Stratified thin soft shales - layers 1/4 to 1 inch thick.

PERSAYO SILTY CLAY (47,04,P,a and b)

```
     WEIGHT  PERCENT  AND  VOLUME  PERCENT  OF  WATER  RETAINED

IDENTIFICATION        T E N S I O N S  (BARS)
                                                                BD      TP
47   4   1   1      .1        .3        .6        3.        15.       G/CC    PCT

     DEPTH                                                             3
      0             43.82     36.45     35.54     26.03     18.75      .97    63.40
                    42.50     35.35     34.47     25.24     18.18
                    FRAGMENT                        SIEVED 19.13ROCK PERCENT 11.39
                                                                       3
      5             45.22     36.51     36.26     28.04     19.66      .97    63.40
                    43.86     35.41     35.17     27.19     19.07
                    FRAGMENT                        SIEVED 20.77ROCK PERCENT  4.12
                                                                       3
     21             39.89     35.89     32.38     22.69     15.24     1.06    60.00
                    42.28     38.04     34.32     24.05     16.15
                    FRAGMENT                        SIEVED 16.46ROCK PERCENT  2.07

IDENTIFICATION        T E N S I O N S  (BARS)
                                                                BD      TP
47   4   1   2      .1        .3        .6        3.        15.       G/CC    PCT

     DEPTH                                                             3
      0             44.37     33.51     31.99     26.54     15.54     1.12    57.74
                    49.69     37.53     35.82     29.72     17.40
                    FRAGMENT                        SIEVED 16.95ROCK PERCENT  5.09
                                                                       3
      3             43.19     30.10     27.16     25.00     18.22     1.00    62.26
                    43.19     30.10     27.16     25.00     18.22
                    FRAGMENT                        SIEVED 15.27ROCK PERCENT  5.48

      1=FIST
      2=CORE
      3=LOOSE
```

PROGRESSO FINE SANDY LOAM (47,05,P,a)

Location: Montano Grant Watershed I, 310' N of road on rim of watershed
Vegetation and land use: Galleta, bluegrass, prickly pear, snakeweed
Topography: Gently sloping mesa
Drainage: Hydrologic B
Parent Material: Aeolian and residual from loamstone and sandstone.
Described and sampled by: C. H. Diebold and G. A. Schumaker

Horizon	Description
A1	0 to 4 inches. Brown (7.5YR 5/4) light fine sandy loam, dark brown (7.5YR 4/4) moist; single grain structure; soft, very friable when moist, nonsticky and nonplastic when wet; noncalcareous; rapidly permeable; abundant roots; clear wavy boundary.
B2t	4 to 9 inches. Yellowish brown (10YR 5/4) sandy clay loam, dark brown (7.5YR 4/4) moist; moderate medium subangular structure; hard, firm when moist, slightly sticky and slightly plastic when wet; thick clay films; noncalcareous; permeable; abundant roots; abrupt wavy boundary.
B3	9 to 16 inches. Pale brown (10YR 6/3) sandy clay loam, yellowish brown (10YR 5/4) moist; weak coarse subangular blocky structure; slightly hard, friable when moist, slightly sticky and slightly plastic when wet; patchy clay skins; strongly calcareous; permeable; abundant roots; clear wavy boundary.
B3ca	16 to 26 inches. Yellowish brown (10YR 5/4) fine sandy loam with mottles of very pale brown (10YR 8/3), yellowish brown (10YR 5/4) with mottles of pale brown (10YR 6/3) moist; weak coarse subangular blocky structure; hard, friable when moist, slightly sticky and nonplastic when wet; violently calcareous; many (50%) coarse mottles; permeable; few roots; gradual wavy boundary.
C1	26 to 36 inches. Yellowish brown (10YR 5/4) heavy loam; massive; slightly hard, very friable when moist, sticky and slightly plastic when wet; violently calcareous; permeable; few roots; abrupt wavy boundary.
C2	36 to 50 inches plus. Fractured, soft, loamstone; noncalcareous; few roots.

PROGRESSO FINE SANDY LOAM (47,05,P,a)

```
     WEIGHT  PERCENT  AND  VOLUME  PERCENT  OF  WATER  RETAINED

IDENTIFICATION        T E N S I O N S  (BARS)
                                                                  BD        TP        K
47   5   1   1      .1        .3        .6        3.        15.      G/CC      PCT     IN/HR

    DEPTH                                                            3
     0             15.08      7.06      5.63      4.99      3.58     1.48     44.15
                   22.31     10.44      8.33      7.38      5.29
                   FRAGMENT                        SIEVED   3.72ROCK PERCENT  1.26
                                                                     1
     4             24.08     16.83     16.23     13.90     12.45     1.45     45.28     1.23
                   34.91     24.40     23.53     20.15     18.05     1.60     39.62     1.61
                   FRAGMENT 16.40                  SIEVED  11.22ROCK PERCENT
                                                                     1
     9             19.53     13.59     12.36     10.42      8.23     1.42     46.42     3.60
                   27.73     19.29     17.55     14.79     11.68     1.52     42.64     2.64
                   FRAGMENT 14.05                  SIEVED   8.57ROCK PERCENT 10.08
                                                                     1
    16             22.86     15.22     14.59     11.40      8.57     1.55     41.51     1.23
                   35.43     23.59     22.61     17.67     13.28     1.63     38.49      .94
                   FRAGMENT 15.07                  SIEVED   9.55ROCK PERCENT  9.34
                                                                     3
    26             24.68     16.46     14.93     12.28      9.39     1.31     50.57     2.96
                   32.33     21.56     19.55     16.08     12.30                        3.38
                   FRAGMENT                        SIEVED  10.05ROCK PERCENT  9.36
                                                                     3
    36             16.66     14.40     13.00     11.74      9.62     1.48     44.15
                   24.65     21.31     19.24     17.37     14.23
                   FRAGMENT                        SIEVED  11.39ROCK PERCENT 91.95


     1=FIST
     2=CORE
     3=LOOSE
```

PROGRESSO FINE SANDY LOAM (47,05,P,b)

Location: Montano Grant Watershed I, 72' N of road on rim.
Vegetation and land use: Galleta, chamiza, yucca, prickly pear, snakeweed
Topography: Gently sloping mesa
Drainage: Hydrologic B
Parent Material: Aeolian and residual from sandstone
Described and sampled by: C. H. Diebold and G. A. Schumaker

Horizon	Description
A11	0 to 3 inches. Pale brown (10YR 6/3) light fine sandy loam; dark brown (10YR 4/3) moist; single grain structure; loose, very friable when moist, nonsticky and nonplastic when wet; noncalcareous; rapidly permeable; abundant roots; clear wavy boundary.
A12	3 to 7 inches. Brown (7.5YR 5/4) heavy fine sandy loam, dark brown (7.5YR 4/4) moist; weak coarse subangular blocky structure; very friable when moist, nonsticky and nonplastic when wet; noncalcareous; permeable; abundant roots; clear wavy boundary.
B2t	7 to 12 inches. Brown (7.5YR 5/4) light sandy clay loam, dark brown (7.5YR 4/4) moist; weak coarse subangular blocky structure; hard, firm when moist, slightly sticky and slightly plastic when wet; patchy clay films; noncalcareous; permeable; abundant roots; clear wavy boundary.
B3	12 to 24 inches. Pinkish gray (7.5YR 6/2) fine sandy loam, brown (7.5YR 5/4) moist; weak coarse subangular blocky structure; slightly hard, firm when moist, nonsticky and nonplastic when wet; patchy clay films; noncalcareous; permeable; abundant roots; gradual smooth boundary.
C1	24 to 41 inches. Reddish yellow (7.5YR 6/6) loamy fine sand, strong brown (7.5YR 5/6) moist; massive; slightly hard, very friable when moist, nonsticky and nonplastic when wet; calcareous; rapidly permeable; few roots; abrupt wavy boundary.
B3cab	41 to 60 inches plus. Yellowish brown (10YR 5/4) sandy clay loam with very pale brown (10YR 8/3) mottles, pale brown (10YR 5/4) mottles (10YR 6/3) when moist; weak medium subangular blocky structure; hard, firm when moist, slightly sticky and slightly plastic when wet; patchy clay films; violently calcareous (mottles 50%); permeable; few roots.

PROGRESSO FINE SANDY LOAM (47,05,P,b)

```
     WEIGHT  PERCENT  AND  VOLUME  PERCENT  OF  WATER  RETAINED

IDENTIFICATION        T E N S I O N S  (BARS)
                                                                       BD        TP       K
47   5   1   2        .1         .3         .6         3.         15.        G/CC      PCT     IN/HR

      DEPTH                                                               3
       0             14.33      6.19       5.09       4.06       3.22      1.57     40.75
                     22.49      9.71       7.99       6.37       5.05
                     FRAGMENT                          SIEVED    3.25ROCK  PERCENT   1.67
                                                                          1
       3             17.14     10.99       9.04       8.28       6.48      1.48     44.15     2.93
                     25.36     16.26      13.37      12.25       9.59      1.57     40.75     2.06
                     FRAGMENT  12.61                   SIEVED    6.81ROCK  PERCENT    .76
                                                                          1
       7             20.81     12.44      11.29       9.35       7.65      1.47     44.53     6.80
                     30.59     18.28      16.59      13.74      11.24      1.57     40.75     1.91
                     FRAGMENT  12.63                   SIEVED    7.95ROCK  PERCENT   2.84
                                                                          1
      12             16.01      9.14       7.92       6.09       5.45      1.59     40.00     7.60
                     25.45     14.53      12.59       9.68       8.66      1.68     36.60     2.49
                     FRAGMENT  10.22                   SIEVED   14.21ROCK  PERCENT
                                                              ( 8.66)     1
      24             10.80      5.85       4.87       4.62       3.48      1.63     38.49    10.12
                     17.60      9.53       7.93       7.53       5.67      1.70     35.85     5.50
                     FRAGMENT   7.70                   SIEVED    4.26ROCK  PERCENT    .25
                                                                          3
      41             29.00     18.75      17.07      13.97       9.27      1.18     55.47     1.03
                     34.22     22.12      20.14      16.48      10.93                          .81
                     FRAGMENT                          SIEVED    9.88ROCK  PERCENT   6.80

       1=FIST
       2=CORE
       3=LOOSE
```

ROUGH BROKEN SHALE LAND (47,06,P, a and b)

Location: Montano Grant Watershed I: Pit a along road, 20' S; Pit b along road 200' E.
Vegetation and land use: Alkali sacaton, shadscale
Topography: 10 percent slopes
Drainage: Hydrologic D
Parent Material: Mesa Verde shale
Described and sampled by: C. H. Diebold and G. A. Schumaker

Horizon	Description
Pit a	
C1	0 to 3 inches. Light brownish gray (2.5Y 6/2) clay, grayish brown (2.5Y 5/2) moist; strong fine platy structure; soft, firm when moist, sticky and plastic when wet; noncalcareous; very slowly permeable; few roots; clear wavy boundary.
C2	3 to 12 inches plus. Fractured soft shale, noncalcareous (variable); visible salts; abundant roots.
Pit b	
C1	0 to 7 inches. Light brownish gray (2.5Y 6/2) clay, grayish brown (2.5Y 5/2) moist; loose, very friable when moist, sticky and plastic when wet; noncalcareous; very slowly permeable; abundant roots; clear wavy boundary.
C2	7 to 12 inches plus. Fractured soft shale; abundant roots.

ROUGH BROKEN SHALE LAND (47,06,P,a and b)

```
       WEIGHT  PERCENT  AND  VOLUME  PERCENT  OF  WATER  RETAINED

IDENTIFICATION        T E N S I O N S  (BARS)
                                                              BD        TP
47   6   1   1     .1        .3        .6        3.       15.     G/CC      PCT

     DEPTH                                                         2
       0          27.58     20.16     18.51     15.56     13.77     1.16     56.23
                  31.99     23.38     21.47     18.04     15.97
                  FRAGMENT                        SIEVED 12.59ROCK PERCENT  7.12
                                                                   3
       3          23.49     19.75     18.40     16.18     13.73     1.18     55.47
                  27.71     23.30     21.71     19.09     16.20
                  FRAGMENT                        SIEVED 15.03ROCK PERCENT 43.03

IDENTIFICATION        T E N S I O N S  (BARS)
                                                              BD        TP
47   6   1   2     .1        .3        .6        3.       15.     G/CC      PCT

     DEPTH                                                         2
       0          23.37     18.36     16.66     14.09     11.44     1.37     48.30
                  32.01     25.15     22.82     19.30     15.67
                  FRAGMENT                        SIEVED 12.20ROCK PERCENT 13.78
                                                                   3
       7          24.27     18.84     17.12     14.90     11.33     1.14     56.98
                  27.66     21.47     19.51     16.98     12.91
                  FRAGMENT                        SIEVED 11.44ROCK PERCENT 12.87

      1=FIST
      2=CORE
      3=LOOSE
```

ROCK OUTCROP AND ROUGH BROKEN SANDSTONE LAND (47,07,P,a and b)

Location: Montano Grant Watershed I: Pit a 572' SE from weir; Pit b 627' from weir.
Vegetation and land use: Little bluestem, bluegramma, pinyon
Topography: 24 percent slopes
Drainage: Hydrologic D
Parent Material: Sandstone
Described and sampled by: C. H. Diebold and G. A. Schumaker

Horizon	Description
Pit a	
C1	0 to 2 inches. Very pale brown (10YR 7/3) loamy sand, pale brown (10YR 6/3) moist; single grain structure; soft, loose when moist; nonsticky and nonplastic when wet; noncalcareous; rapidly permeable; few roots; clear smooth boundary.
R	2 inches plus. Massive sandstone.
Pit b	
R	Bare sandstone outcrop occupies 65 percent of the mapping unit.

ROCK OUTCROP AND ROUGH BROKEN SANDSTONE LAND (47,07,P,a and b)

```
      WEIGHT  PERCENT  AND  VOLUME  PERCENT  OF  WATER  RETAINED

IDENTIFICATION        T E N S I O N S  (BARS)
                                                              BD         TP
47    7    1    1     .1        .3        .6        3.        15.       G/CC       PCT

    DEPTH                                                                  3
      0               6.19      3.99      3.77      3.19      2.27      1.56     41.13
                      9.65      6.22      5.88      4.97      3.54
                     FRAGMENT                        SIEVED   2.95ROCK PERCENT     .56
                                                                           3
      2               5.68      5.49      3.42      2.62      2.35       .58     78.11
                      3.29      3.18      1.98      1.51      1.36
                     FRAGMENT                        SIEVED   1.08ROCK PERCENT

IDENTIFICATION        T E N S I O N S  (BARS)
                                                              BD         TP
47    7    1    2     .1        .3        .6        3.        15.       G/CC       PCT

    DEPTH                                                                  3
      0               8.41      6.05      5.17      3.79      2.87      1.56     41.13
                     13.11      9.43      8.06      5.91      4.47
                     FRAGMENT                        SIEVED   3.48ROCK PERCENT 87.48

      1=FIST
      2=CORE
      3=LOOSE
```

BILLINGS CLAY LOAM (47,08,P,a and b)

Location: Montano Grant Watershed II: Pit a about 300 yds. NW of gauging station; Pit b 250 yds. NW of gauging station.
Vegetation and land use:
Topography:
Drainage:
Parent Material:
Described and sampled by: C. H. Diebold and G. A. Schumaker

Horizon	Description
Pit a	
A1	0 to 4 inches. Light olive brown (2.5Y 5/4) light clay loam; weak fine angular blocky structure; friable when moist, slightly sticky and slightly plastic when wet; calcareous; slowly permeable.
Pit b	
A1	0 to 5 inches. Light olive brown (2.5Y 5/4) clay loam; weak fine angular blocky structure; friable when moist; slightly sticky and slightly plastic when wet; calcareous; slowly permeable.

BILLINGS CLAY LOAM (47,08,P,a and b)

```
     WEIGHT  PERCENT  AND  VOLUME  PERCENT  OF  WATER  RETAINED

IDENTIFICATION        T E N S I O N S  (BARS)
                                                              BD        TP
47   8   1   1     .1       .3       .6       3.       15.    G/CC      PCT

     DEPTH                                                       3
      0           29.80    14.57    12.56    10.48     8.79    1.19     55.09
                  35.46    17.33    14.94    12.47    10.46
                  FRAGMENT                      SIEVED  8.94ROCK PERCENT    .41

IDENTIFICATION        T E N S I O N S  (BARS)
                                                              BD        TP
47   8   1   2     .1       .3       .6       3.       15.    G/CC      PCT

     DEPTH                                                       3
      0           25.94    14.28    12.43    10.76     8.59    1.24     53.21
                  32.16    17.70    15.41    13.34    10.65
                  FRAGMENT                      SIEVED  9.69ROCK PERCENT  6.53

       1=FIST
       2=CORE
       3=LOOSE
```

TRAVESILLA-LIKE FINE SANDY LOAM (47,09,P,a and b)

Location: Montano Grant Watershed I; Pit a 240' W of road, Pit b 410' W of road.
Vegetation and land use: Indian ricegrass, galleta, black gramma, chamiza
Topography: Hilly, 18 percent and 22 percent slopes, respectively.
Drainage: Hydrologic B
Parent Material: Aeolian and residual from sandstone
Described and sampled by: C. H. Diebold and G. A. Schumaker

Horizon	Description
Pit a	
C1	0 to 12 inches. Very pale brown (10YR 7/4) light fine sandy loam, yellowish brown (10YR 5/4) moist; single grain; loose; very friable when moist; nonsticky and nonplastic when wet; noncalcareous; rapidly permeable; abundant roots; clear smooth boundary.
R	12 inches plus. Massive sandstone; calcareous (intermittent): no roots.
Pit b	
C1	0 to 3 inches. Very pale brown (10YR 7/4) fine sandy loam, yellowish brown (10YR 5/4) moist; single grain; loose; very friable when moist, nonsticky and nonplastic when wet; noncalcareous; rapidly permeable; abundant roots; clear smooth boundary.
C2	3 to 7 inches. Very pale brown (10YR 7/4) fine sandy loam, yellowish brown (10YR 5/4) moist; single grain; loose, very friable when moist, nonsticky and nonplastic when wet; calcareous; rapidly permeable; abundant roots; clear smooth boundary.
R	7 inches plus. Massive sandstone; noncalcareous.

TRAVESILLA-LIKE FINE SANDY LOAM (47,09,P,a and b)

```
     WEIGHT  PERCENT  AND  VOLUME  PERCENT  OF  WATER  RETAINED

IDENTIFICATION       T E N S I O N S  (BARS)
                                                              BD      TP
47   9   1   1     .1        .3        .6        3.        15.       G/CC    PCT

     DEPTH                                                          3
      0           10.92     4.87      4.08      3.79      5.14      1.56    41.13
                  17.03     7.59      6.36      5.91      8.01
                  FRAGMENT                       SIEVED   3.68ROCK  PERCENT   .64
                                                                    3
     12           14.89     8.51      7.14      4.59      2.72      1.43    46.04
                  21.29    12.16     10.21      6.56      3.88
                  FRAGMENT                       SIEVED   2.89ROCK  PERCENT 61.53


IDENTIFICATION       T E N S I O N S  (BARS)
                                                              BD      TP
47   9   1   2     .1        .3        .6        3.        15.       G/CC    PCT

     DEPTH                                                          3
      0           16.76     7.54      6.79      5.40      5.14      1.56    41.13
                  26.14    11.76     10.59      8.42      8.01
                  FRAGMENT                       SIEVED   4.78ROCK  PERCENT   .58
                                                                    3
      7           15.99     9.18      7.17      5.05      3.11      1.43    46.04
                  22.86    13.12     10.25      7.22      4.44
                  FRAGMENT                       SIEVED   2.90ROCK  PERCENT 53.37

      1=FIST
      2=CORE
      3=LOOSE
```

THATUNA SILT LOAM (56,05,C,a)

Location: Univ. of Idaho Exp. Sta., E of Moscow in the NW¼, NW¼ sec. 15, T39N, R5W; 230' S and 280' E of fence corner in NW cor. of station.
Vegetation and land use: Fallow, cultivated
Topography: Moderately sloping upland, 9 percent slopes, north aspect. Elev. 2600'
Drainage: Moderately well drained; medium runoff; permeability moderately slow.
Parent Material: Very deep loess
Described and sampled by: R. J. Barker and G. A. Schumaker

Horizon	Description
Ap	0 to 8 inches. Dark grayish brown (10YR 4/2) silt loam, very dark brown (10YR 2/2) moist; weak medium and fine subangular blocky and moderate medium granular structure; very friable, slightly sticky, slightly plastic; plentiful fine roots; many very fine interstitial pores; pH 6.0; abrupt smooth boundary.
A12	8 to 17 inches. Dark grayish brown (10YR 4/2) silt loam, black (10YR 2/1) moist; weak medium and fine subangular blocky and moderate medium granular structure; very friable, slightly sticky, slightly plastic; abundant fine roots; many very fine continuous tubular pores; pH 6.4; clear smooth boundary.
A13	17 to 24 inches. Grayish brown (10YR 5/2) silt loam, very dark brown (10YR 2/2) moist; weak medium prismatic and weak medium subangular blocky structure; very friable, slightly sticky, slightly plastic; abundant fine roots; many very fine and few medium continuous tubular pores; pH 6.6; clear smooth boundary.
A1/A2	24 to 29 inches. Grayish brown (10YR 5/2) silt loam, very dark grayish brown (10YR 3/2) moist; weak medium prismatic and weak medium subangular blocky structure; very friable; slightly sticky, slightly plastic; abundant fine roots; many very fine and few medium continuous tubular pores; pH 6.6; clear smooth boundary.
A21	29 to 33 inches. Light brownish gray (10YR 6/2) silt loam; very dark grayish brown (10YR 3/2) moist; weak medium subangular blocky structure; very friable, slightly sticky, slightly plastic; few fine roots; many very fine tubular and vesicular pores; few 1 mm. concretions; pH 6.8; abrupt smooth boundary.
A22	33 to 34 inches. Light gray (10YR 7/2) silt loam, very dark grayish brown (10YR 3/2) moist; massive; very friable, slightly sticky, nonplastic; few fine roots; common very fine continuous tubular pores; many 1 mm. concretions; pH 6.8; abrupt smooth boundary.
B&A	34 to 38 inches. Light brownish gray (10YR 6/2) silty clay loam, brown (10YR 4/3) moist,weak medium prismatic and moderate medium and fine subangular pores; thick continuous clay films on vertical and horizontal surfaces and in pores; few 1 mm. concretions; much bleachings on peds (10YR 7/2 dry); pH 6.4; clear smooth boundary.
B21t	38 to 51 inches. Pale brown (10YR 6/3) silty clay loam, brown (10YR 4/3) moist; weak prismatic and moderate medium and fine angular blocky structure; firm, sticky, plastic; few fine roots mainly on ped faces; few very fine continuous pores; thick continuous clay films on vertical and horizontal faces and in pores; few 1 mm. concretions; dark organic staining on some vertical faces; pH 6.6; clear smooth boundary.
B22t	51 to 61 inches. Pale brown (10YR 6/3) silty clay loam, brown (10YR 4/3) moist; moderate, medium and fine angular blocky structure; firm, sticky, plastic; no roots; few very fine continuous tubular pores; thick continuous clay films on vertical and horizontal surfaces and in pores; many 1 mm. concretions; manganese staining on some surfaces; pH 6.8; clear smooth boundary.
B3	61 to 66 inches. Pale brown (10YR 6/3) silty clay loam, brown (10YR 4/3) moist; moderate, medium, and fine angular blocky structures; firm, sticky, plastic; no roots; medium patchy clay films on vertical and horizontal surfaces and in pores; pH 7.0.

THATUNA SILT LOAM (56,05,C,a)

```
      WEIGHT  PERCENT  AND  VOLUME  PERCENT  OF  WATER  RETAINED

IDENTIFICATION        T E N S I O N S  (BARS)
                                                                 BD      TP       K
56   5   2   1    .1        .3        .6        3.        15.      G/CC    PCT    IN/HR

     DEPTH                                                        3
      0           33.03     26.69     21.93     16.85     12.17     1.12    57.74
                  36.99     29.39     24.56     18.87     13.63
                  FRAGMENT                          SIEVED 15.89ROCK PERCENT  2.63
                                                                  1
      8           32.24     29.35     28.10     22.04     15.71     1.26    52.45      .58
                  40.62     36.98     35.40     27.77     19.79     1.40    47.17     1.68
                  FRAGMENT 27.67                    SIEVED 17.07ROCK PERCENT 14.11
                                                                  1
     24           32.96     29.57     26.88     19.74     12.97     1.37    48.30      .34
                  45.15     40.51     36.82     27.04     17.76     1.47    44.53      .42
                  FRAGMENT 26.10                    SIEVED 12.50ROCK PERCENT   .24
                                                                  1
     29           25.72     24.89     22.69      9.52      5.49     1.43    46.04      .14
                  36.77     35.59     32.44     13.61      7.85     1.50    43.40      .21
                  FRAGMENT 25.44                    SIEVED  6.92ROCK PERCENT  1.80
                                                                  1
     34           27.57     27.07     24.31     23.62     18.47     1.47    44.53      0
                  40.52     39.79     35.73     34.72     27.15     1.66    37.36
                  FRAGMENT 26.37                    SIEVED 23.10ROCK PERCENT 17.52
                                                                  1
     38           26.06     25.92     24.92     22.15     20.07     1.54    41.89      .06
                  40.13     39.91     38.37     34.11     30.90     1.71    35.47      .08
                  FRAGMENT 24.74                    SIEVED 14.99ROCK PERCENT
                                                          (26.47)  1
     51           24.12     22.16     21.17     19.68     18.77     1.46    44.91      0
                  35.21     32.35     30.90     28.73     27.40     1.66    37.36      .24
                  FRAGMENT 24.93                    SIEVED 22.00ROCK PERCENT 15.97

      1=FIST
      2=CORE
      3=LOOSE
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THATUNA SILT LOAM (56,05,C,b)

Location: Latah County; 693' E and 72' S of the NW cor. of SW¼ sec. 16, T39N, R5W.
Vegetation and land use: Grass
Topography: Moderately sloping upland, 15 percent slopes, north aspect. Elev. 2600'
Drainage: Moderately well drained; medium runoff; permeability moderately slow.
Parent Material: Very deep loess
Described and sampled by: R. J. Barker and G. A. Schumaker

Horizon	Description
Ap	0 to 6 inches. Dark grayish brown (10YR 4/2) silt loam, very dark brown (10YR 2/2) moist; moderate medium granular structure, weak medium, platy structure in lower part; very friable, slightly sticky, slightly plastic; abundant fine roots; many very fine continuous interstitial pores; pH 6.6; abrupt smooth boundary.
A12	6 to 12 inches. Dark grayish brown (10YR 4/2) silt loam, very dark brown (10YR 2/2) moist; weak medium subangular and moderate medium granular structure; very friable, slightly sticky, slightly plastic; abundant fine roots; many very fine continuous tubular pores; pH 6.4; clear smooth boundary.
A13	12 to 19 inches. Dark grayish brown (10YR 4/2) silt loam, very dark brown (10YR 2/2) moist; weak medium subangular blocky and weak medium granular structure; very friable, slightly sticky, slightly plastic; abundant fine roots; many very fine continuous tubular pores; dark organic coatings on all peds; pH 6.6; clear smooth boundary.
A3	19 to 27 inches. Grayish brown (10YR 5/2) silt loam, very dark grayish brown (10YR 3/2) moist; weak medium prismatic and weak medium subangular blocky structure; very friable, slightly sticky, slightly plastic; abundant fine roots; many very fine continuous tubular pores; krotovinas 2" in diameter; streakings of darker material on the peds; pH 6.2; clear smooth boundary.
B2	27 to 35 inches. Pale brown (10YR 6/3) silt loam, dark brown (10YR 4/3) moist; weak or moderate medium and fine subangular blocky structure; very friable, slightly sticky, slightly plastic; few fine roots; many very fine continuous tubular pores; much bleaching on vertical faces; few fine concretions; 1/4" root channels filled with A1 material; pH 6.4; clear smooth boundary.
A&B	35 to 40 inches. Pale brown (10YR 6/3) silt loam, dark grayish brown (10YR 4/2) moist; weak medium and fine subangular blocky structure; very friable, slightly sticky, slightly plastic; few fine roots; many very fine continuous tubular pores; common fine concretions; 1/4" root channels filled with A1 material; pH 6.6; abrupt wavy boundary.
B21t	40 to 49 inches. Brown (10YR 5/3) silty clay loam, dark brown (10YR 4/3) moist; weak medium prismatic and weak or moderate medium angular blocky structure; firm, sticky, plastic; few fine roots; many very fine continuous tubular pores; thick continuous clay films on vertical and horizontal surfaces and in pores (10YR 3/4 dry); common concretions up to 2 mm; 1/4" channels filled with A1 material; pH 6.6; clear smooth boundary.
B22t	49 to 64 inches. Brown (10YR 5/3) silty clay loam, dark brown (10YR 4/3) moist; weak or moderate medium angular blocky structure; firm, sticky, plastic; few fine roots; many very fine continuous tubular pores; thick continuous clay films on vertical and horizontal surfaces and in pores (10YR 3/4 dry); few concretions up to 2mm; 1/4" channels filled with A1 material; pH 6.6; clear smooth boundary.
B3	64 to 72 inches. Pale brown (10YR 6/3) silty clay loam, dark brown (10YR 4/3) moist; weak medium subangular blocky structure; firm, sticky, plastic; none or few fine roots; many very fine continuous tubular pores; thick continuous clay films on vertical and horizontal surfaces and in pores; few concretions up to 2 mm; many 1/4" channels filled with A1 material; pH 6.6.

MOSCOW, IDAHO

THATUNA SILT LOAM (56,05,C,b)

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          WEIGHT  PERCENT  AND  VOLUME  PERCENT  OF  WATER  RETAINED

IDENTIFICATION        TENSIONS  (BARS)
                                                                   BD      TP        K
56   5   2   2       .1       .3       .6       3.       15.      G/CC    PCT     IN/HR

        DEPTH                                                           1
           0         30.99    27.48    24.80    19.77    12.85     1.24    53.21      .42
                     38.42    34.07    30.75    24.51    15.93     1.37    48.30     1.10
                     FRAGMENT 29.12               SIEVED 10.57ROCK PERCENT
                                                                        1
           6         33.16    28.15    25.51    20.28    12.38     1.28    51.70      .41
                     42.44    36.03    32.65    25.95    15.84     1.38    47.92      .74
                     FRAGMENT 28.36               SIEVED 10.34ROCK PERCENT
                                                                        1
          12         31.21    27.84    24.53    19.76    12.50     1.26    52.45      .58
                     39.32    35.07    30.90    24.89    15.75     1.37    48.30     1.76
                     FRAGMENT 27.73               SIEVED 10.09ROCK PERCENT
                                                                        1
          19         31.12    27.02    25.44    18.22    12.45     1.42    46.42      .07
                     44.19    38.36    36.12    25.87    17.67     1.51    43.02      .07
                     FRAGMENT 23.80               SIEVED  9.65ROCK PERCENT
                                                                        1
          27         28.89    26.82    26.08    18.29    12.60     1.39    47.55      .20
                     40.15    37.27    36.25    25.42    17.51     1.53    42.26      .10
                     FRAGMENT 25.73               SIEVED  9.23ROCK PERCENT
                                                                        1
          35         30.62    27.39    25.53    16.19    13.05     1.50    43.40      .04
                     45.93    41.08    38.29    24.28    19.57     1.68    36.60       0
                     FRAGMENT 24.14               SIEVED 12.87ROCK PERCENT   1.54
                                                                        1
          40         31.05    28.27    27.31    22.53    17.22     1.49    43.77       0
                     46.26    42.12    40.69    33.56    25.65     1.65    37.74
                     FRAGMENT 24.95               SIEVED 18.71ROCK PERCENT   2.13
                                                                        1
          49         29.92    26.92    25.94    21.46    17.39     1.51    43.02       0
                     45.17    40.64    39.16    32.40    26.25     1.67    36.98
                     FRAGMENT 28.84               SIEVED 19.93ROCK PERCENT    .93


          1=FIST
          2=CORE
          3=LOOSE
```

GARFIELD SILT LOAM (60,02,C,a)

Location: ARS Conservation Farm northwest of Pullman, about 900' W of farm shop.
Vegetation and land use: Alfalfa
Topography: Rounded ridge top
Drainage: Well drained
Parent Material: Layered loess; probably one of the older deposits.
Described and sampled by: E. T. Harrison and G. A. Schumaker

Horizon	Description
Ap	0 to 6 inches. Brown (10YR 5/3) silty clay loam, dark grayish brown (10YR 4/2) moist; moderate fine granular structure; hard, friable, sticky and plastic; abundant roots; slightly acid, pH 6.4; abrupt smooth boundary.
B21t	6 to 27 inches. Yellowish brown (10YR 5/4; rubbed) silty clay, brown (10YR 4/3; rubbed) moist; moderate medium prismatic breaking to strong fine angular blocky structure, prism faces are dark brown (7.5YR 3/2) when moist; very hard, firm, sticky and plastic; abundant roots; few very fine and many micro pores; moderate almost continuous clay films on prism faces and thin patchy films on some ped surfaces; 5 to 10 manganese concretions per cubic inch of soil; mildly alkaline, pH 7.6; clear wavy boundary.
B22t	27 to 47 inches. Light yellowish brown (10YR 6/4; rubbed) silty clay loam, brown (10YR 4/3; rubbed) moist; moderate coarse prismatic breaking to strong fine angular blocky structure, prism faces are dark brown (10YR 3/3) when moist; very hard, firm, sticky and plastic; few roots; common very fine and many micro pores; thin patchy clay films on prism faces; manganese and/or organic matter stains on ped faces; 1 to 2 manganese concretions per cubic inch; horizon usually dry; mildly alkaline, pH 7.6; gradual wavy boundary.
C	47 to 60 inches. Light yellowish brown (10YR 6/4; rubbed) silty clay loam, dark yellowish brown (10YR 4/4; rubbed) moist; weak coarse prismatic breaking to strong fine angular blocky structure, prism faces are dark grayish brown when moist; very hard, firm, slightly sticky and slightly plastic; very few roots, if any; common fine and many micro pores; neutral, pH 6.6.

GARFIELD SILT LOAM (60,02,C,a)

```
      WEIGHT  PERCENT  AND  VOLUME  PERCENT  OF  WATER  RETAINED

IDENTIFICATION        T E N S I O N S  (BARS)
                                                                  BD        TP        K
60   2   2   1      .1        .3        .6        3.        15.      G/CC      PCT     IN/HR

     DEPTH                                                               1
       0           27.49     22.22     19.72     15.60     10.28     1.41     46.79     .34
                   38.76     31.33     27.80     21.99     14.49     1.56     41.13     .70
                   FRAGMENT  19.95               SIEVED  11.20ROCK PERCENT   2.90
                                                                         1
       6           31.79     27.42     23.99     21.73     16.52     1.46     44.91      0
                   46.41     40.03     35.02     31.72     24.11     1.81     31.70
                   FRAGMENT  24.48               SIEVED  16.28ROCK PERCENT  13.17
                                                                         1
      27           26.55     24.85     21.51     19.39     15.38     1.58     40.38      0
                   41.94     39.26     33.98     30.63     24.30     1.71     35.47
                   FRAGMENT  22.62               SIEVED  14.87ROCK PERCENT   3.26
                                                                         1
      47           27.22     25.34     21.80     20.28     15.13     1.39     47.55      0
                   37.83     35.22     30.30     28.18     21.03     1.55     41.51
                   FRAGMENT  27.96               SIEVED  14.61ROCK PERCENT   8.09

      1=FIST
      2=CORE
      3=LOOSE
```

GARFIELD SILTY CLAY LOAM (60,02,C,b)

Location: A1 Dunning farm 4 mi. WSW of Pullman. SE slope on the point of a long ridge, 640' N and 75' W of S¼ cor. sec. 24, T14N, R45E.
Vegetation and land use: Summerfallow
Topography: Rounded ridges on hilly uplands
Drainage: Well drained
Parent Material: Layered loess; probably one of the older deposits.
Described and sampled by: E. T. Harrison and G. A. Schumaker

Horizon	Description
Ap	0 to 9 inches. Brown (10YR 5/3) silty clay loam, dark brown (10YR 4/3) moist; strong medium granular structure; very hard, firm, sticky and plastic; plentiful roots; neutral, pH 6.8; abrupt smooth boundary.
B2t	9 to 32 inches. Yellowish brown (10YR 5/4; rubbed) silty clay, dark brown (10YR 4/3; rubbed) moist; strong medium prismatic breaking to strong fine angular blocky structure, prism faces are dark brown with reddish (7.5YR) hue when moist; red color fades on exposure to air; very hard, very firm, very sticky and plastic; plentiful roots; few very fine and many micro pores; moderate patchy clay films on prism faces; organic matter and/or manganese stains on all ped surfaces; 5 to 10 fine manganese concretions per cubic inch; neutral, pH 6.8; gradual wavy boundary.
C	32 to 60 inches. Light yellowish brown (10YR 6/4; rubbed) silty clay loam, brown or dark yellowish brown (10YR 4/3; rubbed) moist; moderate medium prismatic breaking to strong fine angular blocky structure, ped faces are one color value darker than matrix; very hard, very firm, very sticky and plastic; very fine roots, if any; common fine and many micro pores; 5 to 10 fine manganese concretions per cubic inch; mildly alkaline, pH 7.6.

GARFIELD SILTY CLAY LOAM (60,02,C,b)

```
        WEIGHT  PERCENT  AND  VOLUME  PERCENT  OF  WATER  RETAINED

IDENTIFICATION           T E N S I O N S  (BARS)
                                                                        BD        TP        K
60   2    2    2     .1        .3        .6        3.        15.       G/CC      PCT      IN/HR

     DEPTH                                                                 3
        0           32.39     24.23     19.14     16.92     12.63      1.37     48.30
                    44.37     33.19     26.22     23.18     17.30
                    FRAGMENT                        SIEVED  12.03ROCK  PERCENT   3.18
                                                                           1
        9           25.79     24.35     21.16     20.41     15.20      1.49     43.77       0
                    38.42     36.28     31.52     30.41     22.64      1.77     33.21
                    FRAGMENT  22.27                 SIEVED  14.61ROCK  PERCENT
                                                                           1
       30           24.89     24.06     20.57     19.02     15.15      1.54     41.89     .05
                    38.33     37.05     31.67     29.29     23.33      1.73     34.72     .11
                    FRAGMENT  22.10                 SIEVED  13.98ROCK  PERCENT    .81

        1=FIST
        2=CORE
        3=LOOSE
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PULLMAN, WASHINGTON

PALOUSE SILT LOAM (60,05,C,a)

Location: William Boyd farm, 2½ mi. NE of Pullman, south slope 25' W of road and 1580' N of center of Sec. 27, T15N, R45E.
Vegetation and land use: Peas
Topography: Strongly sloping to hilly uplands, long slopes.
Drainage: Well drained
Parent Material: Deep loess
Described and sampled by: E. T. Harrison and G. A. Schumaker

Horizon	Description
Ap	0 to 9 inches. Dark grayish brown (10YR 4/2) silt loam, very dark brown (10YR 2/2) moist; moderate fine granular structure; slightly hard, friable, slightly sticky and slightly plastic; abundant fine roots; many fine pores between peds; slightly acid, pH 6.4; abrupt smooth boundary.
A12	9 to 18 inches. Grayish brown (10YR 5/2) silt loam, very dark grayish brown (10YR 3/2) moist; weak coarse blocky structure; hard, friable, slightly sticky and slightly plastic; abundant roots; common fine and many very fine pores; neutral, pH 6.6; gradual wavy boundary.
B-A	18 to 29 inches. Brown (10YR 5/3; rubbed) silty clay loam, dark brown (10YR 4/3; rubbed) moist; moderate medium prismatic breaking to a moderate medium granular structure, granules are coated with very dark brown materials from above; hard, friable, sticky and plastic; abundant fine roots; many fine and very fine pores; 20 to 25 percent of the cross-sectional area is worm holes; there has been considerable mixing of A and B horizon materials; neutral, pH 6.6; clear wavy boundary.
B2	29 to 42 inches. Brown (10YR 5/3; rubbed) silt loam; brown (10YR 4/3; rubbed) moist; moderate medium prismatic breaking to a strong fine blocky structure, ped surfaces are dark brown when moist; very hard, friable, sticky and plastic; plentiful fine roots; many very fine and micro pores; thin patchy clay films and dark organic matter stains on prism faces; gray silt grains in vertical fractures; approximately 5 percent of the cross section occupied by wormholes; neutral, pH 7.0; clear wavy boundary.
C	42 to 60 inches. Pale brown (10YR 6/3) silt loam, brown (10YR 4/3) moist; moderate medium prismatic breaking to moderate fine angular blocky structure; hard, friable, sticky and plastic; few roots; many fine and micro pores; well developed faces on prisms; occasional worm holes; neutral, pH 6.8.

PULLMAN, WASHINGTON

PALOUSE SILT LOAM (60,05,C,a)

```
     WEIGHT  PERCENT  AND  VOLUME  PERCENT  OF  WATER  RETAINED

IDENTIFICATION         T E N S I O N S  (BARS)
                                                                 BD       TP       K
60    5   2    1      .1       .3       .6       3.       15.      G/CC     PCT    IN/HR

     DEPTH                                                          3
      0              36.21    25.73    17.88    15.04     8.91    1.10    58.49
                     39.83    28.30    19.66    16.54     9.80
                     FRAGMENT                      SIEVED  9.41ROCK PERCENT   .88
                                                                    1
      9              26.62    22.22    19.32    19.10    12.60    1.35    49.06      .22
                     35.93    29.99    26.08    25.78    17.01    1.49    43.77      .12
                     FRAGMENT 22.41                SIEVED 12.82ROCK PERCENT  8.56
                                                                    1
     18              26.16    24.87    22.05    19.27    12.96    1.34    49.43      .31
                     35.05    33.32    29.54    25.82    17.36    1.48    44.15      .54
                     FRAGMENT 22.94                SIEVED 15.84ROCK PERCENT  1.41
                                                                    1
     29              27.64    24.39    21.39    19.20    12.64    1.51    43.02      .08
                     41.73    36.82    32.29    28.99    19.08    1.67    36.98      .18
                     FRAGMENT 21.92                SIEVED 10.19ROCK PERCENT
                                                                    1
     42              26.66    25.58    21.98    18.65    13.40    1.46    44.91      .09
                     38.92    37.34    32.09    27.22    19.56    1.60    39.62      .08
                     FRAGMENT 22.68                SIEVED 13.83ROCK PERCENT   .81

      1=FIST
      2=CORE
      3=LOOSE
```

PULLMAN, WASHINGTON

PALOUSE SILT LOAM (60,05,C,b)

Location: Staley Estate, 4 mi. SE of Pullman: on large S slope 280' N of County road and 970' E of west line of Sec. 27, T14N, R45E.
Vegetation and land use: Summerfallow
Topography: Hilly uplands with long slopes
Drainage: Well drained
Parent Material: Deep loess
Described and sampled by: E. T. Harrison and G. A. Schumaker

Horizon	Description
Ap	0 to 7 inches. Dark grayish brown (10YR 4/2) silt loam, very dark brown (10YR 2/2) moist; moderate fine granular structure; slightly hard, friable; slightly sticky and slightly plastic; abundant fine roots; many fine pores between granules; neutral, pH 6.6; abrupt smooth boundary.
A12	7 to 14 inches. Dark grayish brown (10YR 4/2) silt loam, very dark brown (10YR 2/2) moist; weak medium blocky structure; slightly hard, friable, slightly sticky and slightly plastic; abundant fine roots; many fine pores; neutral, pH 6.6; clear wavy boundary.
B21	14 to 24 inches. Brown (10YR 5/3; rubbed) silt loam, dark grayish brown (10YR 4/2; rubbed) moist; moderate fine blocky structure, ped surfaces are very dark brown or black when moist; very hard, friable, slightly sticky and plastic; abundant fine roots; many micro pores; 20 percent of the cross-sectional area occupied by worm holes at least partially filled with dark colored surface material; there has been considerable mixing of A and B horizon materials; neutral, pH 6.8; gradual wavy boundary.
B22	24 to 40 inches. Pale brown (10YR 6/3; rubbed) silt loam, brown (10YR 4/3; rubbed) moist; moderate medium prismatic breaking to moderate medium and fine subangular blocky structure; ped surfaces are dark brown when moist; very hard, friable, sticky and plastic; abundant fine roots; many very fine and micro pores; occasional thin clay film on prism faces; 5 to 10 percent of the area occupied by worm holes partially filled with dark A horizon materials; neutral, pH 7.0; gradual wavy boundary.
B3 or C	40 to 60 inches. Pale brown (10YR 6/3) silt loam, brown (10YR 4/3) moist; weak coarse prismatic breaking to moderate very fine blocky structure; hard, friable, sticky and plastic; few fine roots; few fine and many very fine and micro pores; very little staining on ped faces; large worm holes about 5 in. apart; neutral, pH 7.2.

PULLMAN, WASHINGTON

PALOUSE SILT LOAM (60,05,C,b)

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      WEIGHT  PERCENT  AND  VOLUME  PERCENT  OF  WATER  RETAINED

IDENTIFICATION        T E N S I O N S  (BARS)
                                                                     BD       TP        K
60   5   2   2      .1       .3       .6       3.       15.       G/CC     PCT     IN/HR

     DEPTH                                                             3
       0            32.57    27.27    20.69    19.87    11.78     1.12    57.74
                    36.47    30.54    23.17    22.25    13.19
                    FRAGMENT                    SIEVED 11.21ROCK PERCENT  4.54
                                                                       3
       7            29.35    26.82    21.78    18.74    11.85     1.17    55.85
                    34.33    31.37    25.48    21.92    13.86
                    FRAGMENT                    SIEVED 11.42ROCK PERCENT  3.70
                                                                       1
      14            29.82    25.52    23.06    21.76    15.00     1.46    44.91     .43
                    43.53    37.25    33.66    31.76    21.90     1.63    38.49     .02
                    FRAGMENT 22.21              SIEVED 15.20ROCK PERCENT  2.06
                                                                       1
      24            32.36    25.92    24.08    22.22    15.48     1.43    46.04     .10
                    46.27    37.06    34.43    31.77    22.13     1.61    39.25     .13
                    FRAGMENT 22.70              SIEVED 14.13ROCK PERCENT   .89
                                                                       1
      40            29.28    25.52    23.46    19.62    13.61     1.34    49.43     .25
                    39.23    34.19    31.43    26.29    18.23     1.51    43.02     .20
                    FRAGMENT 24.22              SIEVED 12.56ROCK PERCENT   .16

       1=FIST
       2=CORE
       3=LOOSE
```

NAFF SILT LOAM (60,06,C,a)

Location: Jerald Walker farm, 2 mi. WSW of Kamiak Mtn.; SE slope 300' N of County road, 500' SW of NE cor. Sec. 26, T16N, R44E.
Vegetation and land use: Peas
Topography: Hilly to steep uplands, short slopes
Drainage: Well drained
Parent Material: Layered loess; probably thin layer of recent material over more strongly weathered older materials.
Described and sampled by: E. T. Harrison and G. A. Schumaker

Horizon	Description
Ap	0 to 9 inches. Dark grayish brown (10YR 4/2) silt loam, very dark brown (10YR 2/2) moist; moderate fine granular structure; slightly hard, friable. slightly sticky and slightly plastic; abundant roots; many fine pores between peds; slightly acid, pH 6.5; abrupt smooth boundary.
A12	9 to 18 inches. Brown (10YR 4/3; rubbed) silty clay loam, dark brown (10YR 3/3; rubbed) moist; weak coarse prismatic structure, prism faces are very dark brown (10YR 2/2, moist); hard, friable, slightly sticky, and plastic; abundant roots; common fine pores; large worm holes about 3 in. apart; neutral, pH 6.7; clear wavy boundary.
B21t	18 to 33 inches. Yellowish brown (10YR 5/4; rubbed) silty clay, brown (10YR 4/3; rubbed) moist; moderate coarse prismatic breaking to strong fine angular blocky structure; ped faces are dark brown with a weak reddish hue that soon disappears on exposure; very hard, firm, sticky and plastic; plentiful roots; common very fine and many micro pores; thin patchy clay films on all surfaces, moderate on some vertical surfaces; many large worm holes partially filled with dark material from above; neutral, pH 6.8; gradual wavy boundary.
B22t	33 to 47 inches. Yellowish brown (10YR 5/4; rubbed) silty clay loam; brown (10YR 4/3; rubbed) moist; weak coarse prismatic breaking to moderate fine angular blocky structure, ped faces are dark brown when moist; hard, firm, sticky and plastic; few fine roots; many very fine and micro pores; well developed pressure faces but no clay films; few manganese concretions; neutral, pH 6.8; gradual wavy boundary.
C	47 to 63 inches. Light yellowish brown (10YR 6/4) silt loam, brown (10YR 4/3) moist; weak medium prismatic breaking to moderate fine angular blocky structure; hard, firm, slightly sticky and slightly plastic; very few roots; common fine and many micropores; 2 to 3 fine manganese concretions per cubic inch; neutral, pH 7.0.

PULLMAN, WASHINGTON

NAFF SILT LOAM (60,06,C,a)

WEIGHT PERCENT AND VOLUME PERCENT OF WATER RETAINED

IDENTIFICATION 60 6 2 1	TENSIONS (BARS) .1	.3	.6	3.	15.	BD G/CC	TP PCT	K IN/HR
DEPTH						1		
0	36.52	24.55	21.05	14.67	10.40	1.27	52.08	.61
	46.38	31.17	26.73	18.63	13.20	1.40	47.17	.41
	FRAGMENT	27.59		SIEVED	11.91ROCK	PERCENT	1.19	
						1		
9	29.12	22.43	20.51	17.15	13.67	1.27	52.08	.52
	36.98	28.48	26.04	21.78	17.36	1.43	46.04	.47
	FRAGMENT	25.93		SIEVED	11.81ROCK	PERCENT		
						1		
18	28.72	23.33	22.91	19.74	15.74	1.51	43.02	0
	43.36	35.22	34.59	29.80	23.76	1.77	33.21	.14
	FRAGMENT	20.75		SIEVED	13.87ROCK	PERCENT		
						1		
33	27.56	23.52	22.52	18.42	14.44	1.59	40.00	.02
	43.82	37.39	35.80	29.28	22.95	1.79	32.45	.06
	FRAGMENT	20.71		SIEVED	10.50ROCK	PERCENT		
						3		
47	28.07	21.73	21.55	17.41	13.12	1.32	50.19	
	37.05	28.68	28.44	22.98	17.31			
	FRAGMENT			SIEVED	13.02ROCK	PERCENT	10.33	

1=FIST
2=CORE
3=LOOSE

NAFF SILT LOAM (60,06,C,b)

Location: John Druffel farm, 4 mi. NNE of Colton, about the middle of the upper third of a long SE slope in the SW¼SW¼ Sec. 12, T13N, R45E.
Vegetation and land use: Spring barley
Topography: Hilly to steep; convex
Drainage: Well drained
Parent Material: Layered loess; a thin layer of recent material over an older more strongly weathered layer.
Described and sampled by: E. T. Harrison and G. A. Schumaker

Horizon	Description
Ap	0 to 6 inches. Dark grayish brown (10YR 4/2) silt loam, very dark brown (10YR 2/2) moist; moderate fine granular structure; slightly hard, friable, slightly sticky and slightly plastic; abundant fine roots; many fine and medium pores between peds; slightly acid, pH 6.5; abrupt smooth boundary.
A-B	6 to 18 inches. Grayish brown (10YR 5/2) silty clay loam, very dark grayish brown (10YR 3/2) moist; weak fine prismatic breaking to weak fine blocky structure, ped faces are very dark brown when moist; hard, friable, sticky and plastic; abundant fine roots; many very fine and micro pores; 2 to 5 large worm holes per sq. ft.; neutral, pH 6.8; abrupt wavy boundary.
B2t	18 to 48 inches. Yellowish brown (10YR 5/4; rubbed) silty clay, brown (10YR 4/3; rubbed) moist; strong fine angular blocky structure, newly exposed peds are dark brown with a reddish hue (7.5YR) which rapidly fades on exposure to the air; very hard; firm, sticky and plastic; plentiful fine roots; many very fine and micro pores; thick continuous clay films on vertical surfaces; black organic matter stains; few manganese concretions; neutral, pH 6.8; gradual wavy boundary.
C	48 to 65 inches. Light yellowish brown (10YR 6/4; rubbed) silt loam; dark yellowish brown (10YR 4/4; rubbed) moist; strong fine angular blocky structure; freshly exposed peds have hue 7.5YR on surface; very hard, firm, sticky and plastic; very few roots; many fine and micro pores; neutral, pH 6.6.

NAFF SILT LOAM (60,06,C,b)

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      WEIGHT  PERCENT  AND  VOLUME  PERCENT  OF  WATER  RETAINED

IDENTIFICATION        T E N S I O N S  (BARS)
                                                                  BD       TP       K
60    6    2    2     .1        .3        .6        3.        15.      G/CC     PCT     IN/HR

      DEPTH                                                                3
        0            32.24     21.87     19.65     13.79     10.13     1.11     58.11
                     35.78     24.27     21.81     15.30     11.24
                     FRAGMENT                        SIEVED  9.44ROCK PERCENT  2.70
                                                                           1
        6            28.99     22.61     21.22     17.10     13.54     1.29     51.32      .47
                     37.39     29.16     27.37     22.05     17.46     1.43     46.04     1.24
                     FRAGMENT 25.15                  SIEVED 13.33ROCK PERCENT  7.35
                                                                           1
       18            30.66     25.42     25.28     21.15     16.66     1.51     43.02      .05
                     46.29     38.38     38.17     31.93     25.15     1.80     32.08      .28
                     FRAGMENT 22.96                  SIEVED 14.60ROCK PERCENT
                                                                           1
       48            30.34     27.32     26.28     22.28     17.45     1.48     44.15      .06
                     44.90     40.43     38.89     32.97     25.82     1.69     36.23      .28
                     FRAGMENT 24.63                  SIEVED 17.64ROCK PERCENT 13.96

        1=FIST
        2=CORE
        3=LOOSE
```

ALEXIS SILT LOAM (61,01,P,a)

Location: Piatt Co., T18N R5E, Sec. 21, NW160 NW40 NE10 NE2½, 42' S from E-W section line.
Vegetation and land use: Bluegrass sod
Topography: 1 percent slope, east, convex; gently sloping Wisconsin age glacial topography.
Parent Material: Loess and glacial outwash sediments. Drainage: Well drained.
Described and sampled by: G. W. Hudelson and G. A. Schumaker

Horizon	Description
A1	0 to 12 inches. Very dark brown (10YR 2/2) silt loam; moderate very fine and fine granular structure; friable; roots abundant; medium acid; clear smooth boundary.
A3	12 to 16 inches. Very dark grayish brown (10YR 3/2) with a few peds of dark brown (7.5YR 4/4) and some very dark brown (10YR 2/2) coatings; silt loam; moderate fine granular with some areas of weak very fine subangular blocky structure; friable; roots abundant; medium acid; clear smooth boundary.
B1t	16 to 22 inches. Dark brown (7.5YR 4/4) with thin continuous very dark grayish brown (10YR 3/2) clay coatings; some coatings of very dark brown (10YR 2/2); light silty clay loam; moderate fine subangular blocky structure; slightly firm; roots common; medium acid; gradual smooth boundary.
B21t	22 to 31 inches. Dark brown (7.5YR 4/4) with thin continuous dark brown (7.5YR 3/4) clay coatings and some worm channels coated with very dark brown (10YR 2/2) clay coatings; silty clay loam; moderate fine and medium subangular blocky structure; firm; roots common; medium acid; gradual smooth boundary.
IIB22t	31 to 42 inches. Dark brown (7.5YR 4/4) with thin discontinuous dark brown to strong brown (7.5YR 4/5) clay coatings, some worm channels coated with very dark brown (10YR 2/2) clay coatings, and a few black (5YR 2/1) Fe-Mn concretions; silty clay loam; weak medium prismatic breaking to moderate medium subangular blocky structure; firm; roots occasional; medium acid; gradual smooth boundary.
IIB31t	42 to 50 inches. Dark brown (7.5YR 4/4) with thin discontinuous dark brown to strong brown (7.5YR 4/5) clay coatings, some worm channels coated with very dark grayish brown (10YR 3/2) clay coatings; clay loam or gritty silty clay loam; weak coarse subangular blocky structure; firm; roots occasional; medium acid; clear smooth boundary.
IIB32t	50 to 60 inches plus. Dark brown (7.5YR 4/4) with patches of dark brown to strong brown (7.5YR 4/5) clay coatings and some worm casts of very dark grayish brown (10YR 3/2); sandy clay loam; very weak coarse subangular blocky structure; slightly firm; roots none; medium acid.

Remarks: All Munsell color notations are for fully moist conditions unless otherwise indicated.
Considerable sand grains were noted in IIB22.
Numerous root pores noted in peds of B horizons.
No ground water within 60".

ALEXIS SILT LOAM (61,01,P,a)

```
     WEIGHT  PERCENT  AND  VOLUME  PERCENT  OF  WATER  RETAINED

IDENTIFICATION       T E N S I O N S  (BARS)
                                                              BD       TP        K
61   1   1   1     .1       .3       .6       3.       15.    G/CC     PCT     IN/HR

     DEPTH                                                       1
      0          29.64    26.63    24.40    22.91    10.56    1.24    53.21     2.58
                 36.75    33.02    30.25    28.40    13.09    1.34    49.43     1.30
                 FRAGMENT 25.25             SIEVED  9.12ROCK PERCENT
                                                                 1
     12          30.11    26.52    25.51    20.35    12.34    1.24    53.21      .44
                 37.33    32.88    31.63    25.23    15.30    1.31    50.57     3.74
                 FRAGMENT 25.05             SIEVED 11.79ROCK PERCENT   .35
                                                                 1
     16          29.23    27.10    26.15    19.32    14.68    1.42    46.42     1.17
                 41.50    38.48    37.13    27.43    20.84    1.58    40.38     2.53
                 FRAGMENT 26.77             SIEVED 12.96ROCK PERCENT 36.84
                                                                 1
     22          31.90    27.31    26.94    22.69    17.22    1.39    47.55     6.62
                 44.34    37.96    37.44    31.53    23.93    1.59    40.00      .46
                 FRAGMENT 26.23             SIEVED 16.57ROCK PERCENT   .20
                                                                 1
     31          31.37    28.40    27.04    22.22    16.34    1.46    44.91     1.64
                 45.80    41.46    39.47    32.44    23.85    1.62    38.87      .92
                 FRAGMENT 27.47             SIEVED 14.28ROCK PERCENT   .30
                                                                 1
     42          26.98    26.08    20.88    18.93    11.52    1.55    41.51      .75
                 41.81    40.42    32.36    29.34    17.85    1.63    38.49      .34
                 FRAGMENT 24.43             SIEVED 10.50ROCK PERCENT   .33
                                                                 1
     50          23.17    19.66    19.25    14.56     8.25    1.59    40.00      .33
                 36.84    31.25    30.60    23.15    13.11    1.65    37.74      .12
                 FRAGMENT 17.44             SIEVED  6.92ROCK PERCENT

     1=FIST
     2=CORE
     3=LOOSE
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ALEXIS SILT LOAM (61,01,P,b)

Location: Piatt Co., T18N R5E, Sec. 21, NW 160 NW40 NE10 NE2½, 37' S from E-W section line.
Vegetation and land use: Bluegrass sod
Topography: 2 percent slope, east, convex; gently sloping Wisconsin age glacial topography.
Parent Material: Loess and glacial outwash sediments. Drainage: Well drained.
Described and sampled by: G. W. Hudelson and G. A. Schumaker

Horizon	Description
A1	0 to 10 inches. Very dark brown (10YR 2/2) silt loam; moderate fine granular structure; friable; roots abundant; medium acid; clear smooth boundary.
A3	10 to 15 inches. Very dark grayish brown (10YR 3/2) silt loam; moderate fine and medium granular structure with some weak very fine subangular blocky structure in lower portion; friable; roots abundant; medium acid; clear smooth boundary.
B1t	15 to 21 inches. Dark brown (7.5YR 4/4) with some very dark brown (10YR 2/2) coatings and a few very dark grayish brown (10YR 3/2) worm casts; light silty clay loam; weak to moderate fine subangular blocky structure; slightly firm; roots common; medium acid; clear smooth boundary.
IIB21t	21 to 30 inches. Dark brown (7.5YR 4/4) with thin continuous dark yellowish brown (10YR 3/4) clay coatings, and a few very dark grayish brown (10YR 3/2) clay coatings in worm channels; clay loam or sandy clay loam; weak to moderate medium subangular blocky structure; firm; roots common; medium acid; clear smooth boundary.
IIB22t	30 to 39 inches. Dark brown (7.5YR 4/4) with thin continuous dark yellowish brown (10YR 3/4) clay coatings; clay loam or sandy clay loam; weak to moderate medium and coarse subangular blocky structure; firm; roots occasional; medium acid; clear smooth boundary.
IIB3	39 to 46 inches. Dark brown (7.5YR 4/4) with thin continuous dark yellowish brown (10YR 3/4) clay coatings and a few very dark yellowish brown (10YR 3/2) worm casts; sandy loam; weak coarse subangular blocky structure; friable; roots occasional; medium acid; clear smooth boundary.
IIC	46 to 60 inches plus. Dark brown (7.5YR 4/4) with some patches of dark yellowish brown (10YR 3/4) clay coatings tonguing into this horizon; light sandy loam; single grain; loose; roots none; medium acid.

Remarks: All Munsell color notations are for fully moist conditions unless otherwise indicated.
No ground water within 60".
Numerous root pores in peds.

MONTICELLO, ILLINOIS

ALEXIS SILT LOAM (61,01,P,b)

```
      WEIGHT  PERCENT  AND  VOLUME  PERCENT  OF  WATER  RETAINED

IDENTIFICATION        T E N S I O N S  (BARS)
                                                              BD       TP        K
61   1   1   2      .1       .3       .6       3.       15.     G/CC     PCT     IN/HR

      DEPTH                                                      1
       0          27.77    24.35    23.07    18.31     9.90    1.37    48.30      .86
                  38.04    33.35    31.60    25.08    13.56    1.45    45.28      .50
                  FRAGMENT 22.48             SIEVED    8.71ROCK PERCENT  2.69
                                                                 1
      10          26.55    23.04    22.54    19.70    10.29    1.42    46.42     3.33
                  37.70    32.71    32.00    27.97    14.61    1.50    43.40     2.77
                  FRAGMENT 21.89             SIEVED   10.13ROCK PERCENT
                                                                 1
      15          27.16    23.04    18.67    19.85    11.60    1.40    47.17      .76
                  38.02    32.25    26.13    27.79    16.24    1.56    41.13     1.40
                  FRAGMENT 22.91             SIEVED    9.77ROCK PERCENT   .29
                                                                 1
      21          22.78    19.99    19.34    16.47     9.90    1.60    39.62      .59
                  36.44    31.98    30.94    26.35    15.84    1.68    36.60      .64
                  FRAGMENT 17.17             SIEVED    7.58ROCK PERCENT  2.25
                                                                 1
      30          19.84    17.00    16.50    14.86     7.73    1.54    41.89     3.76
                  30.55    26.18    25.41    22.88    11.90    1.64    38.11      .78
                  FRAGMENT 16.12             SIEVED    5.77ROCK PERCENT
                                                                 1
      39          20.89    17.33    16.34    14.54     8.15    1.56    41.13      .75
                  32.58    27.03    25.49    22.68    12.71    1.64    38.11      .73
                  FRAGMENT 15.44             SIEVED    6.52ROCK PERCENT  3.39
                                                                 3
      46          17.77    14.72    12.05    11.50     6.00    1.60    39.62
                  28.43    23.55    19.28    18.40     9.60
                  FRAGMENT                   SIEVED    5.80ROCK PERCENT  3.75

       1=FIST
       2=CORE
       3=LOOSE
```

ALEXIS SILT LOAM (61,01,C,a)

Location: Piatt Co., T18N R5E, Sec. 16, SW160 NW 40 SE10 SE2½, 42' N from north E-W lane fence.
Vegetation and land use: Wheat stubble with seeding of clover.
Topography: 2 percent slope, east, convex; gently sloping Wisconsin age glacial topography.
Parent Material: Loess and glacial outwash sediments. Drainage: Well drained.
Described and sampled by: G. W. Hudelson and G. A. Schumaker

Horizon	Description
Ap	0 to 6 inches. Very dark brown (10YR 2/2) silt loam; weak to moderate very fine and fine granular structure; friable; roots abundant; neutral; abrupt smooth boundary.
A12	6 to 10 inches. Very dark brown (10YR 2/2) silt loam; weak to moderate fine granular structure; friable; roots abundant; slightly acid; clear smooth boundary.
A3	10 to 14 inches. Very dark grayish brown (10YR 3/2) with a few peds of yellowish brown (10YR 5/4) and some stains of very dark brown (10YR 2/2) heavy silt loam; weak to moderate fine and medium granular structure; friable; roots common; medium acid; clear smooth boundary.
B1t	14 to 20 inches. Dark brown (7.5YR 4/4) with thin continuous dark yellowish brown (10YR 3/4) clay coatings and occasional very dark brown (10YR 2/2) clay coatings; light silty clay loam; weak to moderate very fine and fine subangular blocky structure; firm; roots common; medium acid; clear smooth boundary.
B2t	20 to 31 inches. Dark brown (7.5YR 4/4) with thin continuous dark brown (7.5YR 3/4) clay coatings and some clay coatings of dark brown (7.5YR 3/2); silty clay loam; weak to moderate fine and medium subangular blocky structure; firm; roots common; medium acid; clear smooth boundary.
IIB31t	31 to 41 inches. Dark brown (7.5YR 4/4) with thin discontinuous dark brown (7.5YR 3/4) clay coatings; clay loam or sandy clay loam; weak medium subangular blocky structure; firm; roots occasional; medium acid; clear smooth boundary.
IIB32t	41 to 49 inches. Dark brown (10YR 3/4) coating sand grains and some black (5YR 2/1) Fe-Mn concretions; sandy clay loam; very weak coarse subangular blocky structure; slightly firm; roots occasional; medium acid; gradual smooth boundary.
IIC	49 to 60 inches plus. Dark brown (7.5YR 4/4) sandy loam; massive; friable; roots none; medium acid.

Remarks: All Munsell color notations are for fully moist conditions unless otherwise indicated.
No ground water within 60"; a few sand grains noted in B2; numerous root pores in peds.

MONTICELLO, ILLINOIS

ALEXIS SILT LOAM (61,01,C,a)

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      WEIGHT  PERCENT  AND  VOLUME  PERCENT  OF  WATER  RETAINED

IDENTIFICATION         T E N S I O N S  (BARS)
                                                                BD        TP        K
61   1   2   1     .1        .3        .6        3.        15.        G/CC      PCT      IN/HR

     DEPTH                                                             1
      0            29.03     25.23     24.08     19.40     10.82     1.43     46.04       .70
                   41.51     36.07     34.43     27.74     15.47     1.55     41.51       .09
                   FRAGMENT 24.14                  SIEVED   9.77ROCK PERCENT   1.55
                                                                       1
      6            28.85     25.32     22.66     19.69     10.42     1.53     42.26      1.89
                   44.14     38.73     34.66     30.12     15.94     1.67     36.98       .84
                   FRAGMENT 24.10                  SIEVED 11.00ROCK PERCENT   3.03
                                                                       1
     10            28.79     25.12     24.86     19.68     11.51     1.32     50.19      2.15
                   38.00     33.15     32.81     25.97     15.19     1.47     44.53      3.58
                   FRAGMENT 23.43                  SIEVED 10.90ROCK PERCENT   1.09
                                                                       1
     14            31.08     25.98     23.80     22.28     14.64     1.35     49.06     12.22
                   41.95     35.07     32.13     30.07     19.76     1.51     43.02      4.70
                   FRAGMENT 24.59                  SIEVED 13.48ROCK PERCENT   1.02
                                                                       1
     20            27.69     24.65     24.07     21.19     14.80     1.41     46.79      2.14
                   39.04     34.75     33.93     29.87     20.86     1.58     40.38      1.42
                   FRAGMENT 22.62                  SIEVED 13.33ROCK PERCENT   5.10

      1=FIST
      2=CORE
      3=LOOSE
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ALEXIS SILT LOAM (61,01,C,b)

Location: Piatt Co., T18N R5E, Sec. 16, SW160 NE40 SW10 SW2½, 1011' W from N-S fence line (west of bldgs.) and 216' N from E-W lane fence.
Vegetation and land use: Wheat stubble with seeding of clover.
Topography: 1 percent slope, east, slightly convex; gently sloping Wisconsin age glacial topography.
Parent Material: Loess and glacial outwash sediments. Drainage: Well drained.
Described and sampled by: G. W. Hudelson and G. A. Schumaker

Horizon	Description
Ap	0 to 6 inches. Very dark brown (10YR 2/2) silt loam; very weak fine granular structure, some areas massive; friable; roots common, neutral; abrupt smooth boundary.
A12	6 to 12 inches. Very dark brown (10YR 2/2) silt loam; weak to moderate fine granular structure; friable; roots common; slightly acid; clear smooth boundary.
A3	12 to 16 inches. Very dark grayish brown (10YR 3/2) with a few peds of dark brown (7.5YR 4/4) silt loam; weak to moderate fine and medium granular structure; friable; roots common; medium acid; clear smooth boundary.
B1t	16 to 21 inches. Dark brown (7.5YR 4/4) light silty clay loam; thin discontinuous dark brown (7.5YR 4/4) clay coatings and a few very dark grayish brown (10YR 3/2) coatings; weak to moderate fine subangular blocky structure; slightly firm; roots occasional; medium acid; clear smooth boundary.
B2t	21 to 33 inches. Dark brown (7.5YR 4/4) silty clay loam; thin discontinuous dark brown (7.5YR 3/4) clay coatings and a few worm casts of very dark grayish brown (10YR 3/2); weak to moderate medium subangular blocky structure; firm; roots occasional; medium acid; clear smooth boundary.
IIB3t	33 inches plus. Dark brown (7.5YR 4/4) sandy clay loam with thin discontinuous dark brown (7.5YR 3/4) clay coatings and a few worm channels coated with very dark brown (10YR 2/2); weak coarse subangular blocky structure; firm; medium acid.

Remarks: All Munsell color notations are for fully moist conditions unless otherwise indicated.
No ground water within 60".

ALEXIS SILT LOAM (61,01,C,b)

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    WEIGHT  PERCENT  AND  VOLUME  PERCENT  OF  WATER  RETAINED

IDENTIFICATION        T E N S I O N S  (BARS)
                                                                BD        TP          K
61   1    2    2     .1        .3        .6        3.       15.       G/CC      PCT       IN/HR

     DEPTH                                                              1
      0             28.91     25.35     25.00     21.02     10.37     1.43      46.04        .88
                    41.34     36.25     35.75     30.05     14.82     1.53      42.26        .48
                    FRAGMENT  23.82                SIEVED  10.37ROCK  PERCENT    2.55
                                                                        1
      6             30.92     27.84     25.31     23.44     11.72     1.30      50.94       2.35
                    40.19     36.19     32.90     30.47     15.23     1.41      46.79       5.96
                    FRAGMENT  29.95                SIEVED  11.73ROCK  PERCENT     .49
                                                                        1
     12             30.23     27.27     25.16     24.02     13.46     1.34      49.43       3.41
                    40.50     36.54     33.71     32.18     18.03     1.46      44.91       2.14
                    FRAGMENT  25.30                SIEVED  12.75ROCK  PERCENT     .20
                                                                        1
     16             31.47     26.95     26.02     21.63     13.66     1.30      50.94       1.50
                    40.91     35.03     33.82     28.11     17.75     1.46      44.91       1.98
                    FRAGMENT  27.73                SIEVED  12.69ROCK  PERCENT    3.64
                                                                        1
     21             27.61     26.63     24.29     20.19     15.16     1.39      47.55        .77
                    38.37     37.01     33.76     28.06     21.07     1.57      40.75        .75
                    FRAGMENT  24.34                SIEVED  18.72ROCK  PERCENT    6.08

      1=FIST
      2=CORE
      3=LOOSE
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SABLE SILTY CLAY LOAM (61,02,P,a)

Location: Piatt Co., T18N R5E, Sec. 20, NE160 NW40 NW10 NE2½, 174' S from E-W section line, 585' E from center of N-S road.
Vegetation and land use: Bluegrass sod
Topography: 1 percent slope, NW, concave; gently sloping Wisconsin age glacial topography.
Drainage: Poor
Parent Material: Loess
Described and sampled by: G. W. Hudelson and G. A. Schumaker

Horizon	Description
A11	0 to 8 inches. Very dark brown (10YR 2/2) silt loam; weak to moderate fine and medium granular structure; friable; roots abundant; medium acid; abrupt smooth boundary.
A12	8 to 14 inches. Black (10YR 2/1) silty clay loam; moderate medium granular structure with some areas of weak very fine subangular blocky structure; firm; roots abundant; medium acid; clear smooth boundary.
A3	14 to 19 inches. Black (10YR 2/1) with small peds of olive brown (2.5Y 4/4) and occasional small black (5YR 2/1) Fe-Mn concretions; silty clay loam; weak to moderate very fine and fine subangular blocky structure; firm; roots abundant; slightly acid; clear smooth boundary.
B21g	19 to 24 inches. Light olive brown (2.5Y 5/4) with common medium distinct yellowish brown (10YR 5/8) mottles, thin continuous olive gray (5Y 5/2) clay coatings (some clay coatings of very dark gray (10YR 3/1)), and numerous black (5YR 2/1) Fe-Mn concretions; silty clay loam; moderate medium subangular blocky structure; firm; roots common; slightly acid; clear smooth boundary.
B22g	24 to 36 inches. Olive brown (2.5Y 4/4) with common medium distinct yellowish brown (10YR 5/8) mottles; thin discontinuous dark gray (10YR 4/1) clay coatings, and numerous black (5YR 2/1) Fe-Mn concretions; silty clay loam; weak medium prismatic breaking to moderate coarse subangular blocky structure; firm; roots occasional; neutral; clear smooth boundary.
B3g	36 to 47 inches. Mixed yellowish brown (10YR 5/6-50%) and gray (10YR 6/1-50%) with many medium faint yellowish brown (10YR 5/8) mottles, thin discontinuous dark gray (10YR 4/1) clay coatings (some coatings of black (10YR 2/1)), clay coatings in worm channels of gray (10YR 5/1), and root channels coated with black (10YR 2/1) (some with very dark gray (10YR 3/1)); silty clay loam; weak coarse prismatic structure; firm; roots none; mildly alkaline; gradual smooth boundary.
C1g	47 to 60 inches plus. Mixed yellowish brown (10YR 5/6-50%) and gray (10YR 6/1-50%) with many medium faint yellowish brown (10YR 5/8) mottles and root channels coated with black (10YR 2/1) (some with very dark gray (10YR 3/1)); silt loam; massive; friable; roots none; moderately alkaline but no effervescence with HCl.

Remarks: All colors are for fully moist conditions unless otherwise indicated.
Krotovina (old crayfish burrow) in B3 filled with dark gray (10YR 4/1) silty clay loam material; krotovina 1½" in diameter.
Water entered pit at 48".
Some grittiness at 54-60"; occasional small pebbles noted in B horizons.
Numerous root pores through peds.

SAVLE SILTY CLAY LOAM (61,02,P,a)

```
     WEIGHT  PERCENT  AND  VOLUME  PERCENT. OF  WATER  RETAINED

IDENTIFICATION        T E N S I O N S  (BARS)
                                                          BD       TP         K
61   2   1   1     .1        .3        .6        3.        15.     G/CC     PCT      IN/HR

      DEPTH                                                          1
        0          38.30     32.53     30.27     26.70     15.75     1.26     52.45     5.83
                   48.25     40.98     38.14     33.64     19.84     1.38     47.92     1.59
                   FRAGMENT  31.15                SIEVED  13.83ROCK PERCENT   1.90
                                                                     1
        8          36.02     33.18     30.21     29.10     19.35     1.32     50.19    11.00
                   47.54     43.79     39.87     38.41     25.54     1.51     43.02    12.43
                   FRAGMENT  32.41                SIEVED  15.48ROCK PERCENT  12.50
                                                                     1
       14          32.29     30.28     25.98     23.55     18.09     1.42     46.42      .37
                   45.85     42.99     36.89     33.44     25.68     1.66     37.36      .25
                   FRAGMENT  29.11                SIEVED  15.88ROCK PERCENT
                                                                     1
       19          33.49     30.95     28.39     24.54     20.25     1.39     47.55      .23
                   46.55     43.02     39.46     34.11     28.14     1.76     33.58      .28
                   FRAGMENT  29.74                SIEVED  17.08ROCK PERCENT
                                                                     1
       24          29.95     28.38     27.31     24.51     17.33     1.43     46.04     1.07
                   42.82     40.58     39.05     35.04     24.78     1.74     34.34      .64
                   FRAGMENT  27.42                SIEVED  14.24ROCK PERCENT
                                                                     1
       36          32.05     29.68     28.62     23.79     15.54     1.47     44.53      .04
                   47.11     43.62     42.07     34.97     22.84     1.50     43.40      .30
                   FRAGMENT  27.71                SIEVED  13.16ROCK PERCENT
                                                                     1
       47          31.05     30.14     28.56     25.44     13.34     1.35     49.06     2.37
                   41.91     40.68     38.55     34.34     18.00     1.51     43.02      .53
                   FRAGMENT  29.90                SIEVED  12.19ROCK PERCENT   8.10


        1=FIST
        2=CORE
        3=LOOSE
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SABLE SILTY CLAY LOAM (61,02,P,b)

Location: Piatt Co., T18N R5E, Sec. 21, NW160 NW40 NW10 NW2½, 132' S from E-W section line, 180' E from N-S section line.
Vegetation and land use: Bluegrass sod
Topography: Depressional, ½ percent slope, SW, concave; nearly level to gently sloping Wisconsin age glacial topography.
Drainage: Poor
Parent Material: Loess
Described and sampled by: G. W. Hudelson and G. A. Schumaker

Horizon	Description
A1	0 to 13 inches. Black (10YR 2/1) silty clay loam; weak to moderate very fine subangular blocky structure; firm; roots abundant; medium acid; clear smooth boundary.
A3	13 to 18 inches. Black (10YR 2/1) with splotches of dark grayish brown (2.5Y 4/2); silty clay loam; weak to moderate very fine subangular blocky structure; firm; roots common; slightly acid; clear smooth boundary.
B1g	18 to 24 inches. Dark grayish brown to grayish brown (2.5Y 4/2) with thin continuous dark grayish brown (10YR 4/2) and very dark gray (10YR 3/1) clay coatings and a few black (5YR 2/1) Fe-Mn concretions; silty clay loam; moderate fine subangular blocky structure; firm; roots common; neutral; clear smooth boundary.
B21g	24 to 31 inches. Olive gray (5Y 5/2) with common fine prominent yellowish brown (10YR 5/8) mottles, thin continuous dark gray (5Y 4/1) clay coatings (some clay coatings of black (10YR 2/1)), and many black (5YR 2/1) Fe-Mn concretions; silty clay loam; weak medium prismatic breaking to moderate medium subangular blocky structure; firm; roots occasional; neutral; gradual smooth boundary.
B22g	31 to 40 inches. Gray (5Y 5/1) with many medium prominent yellowish brown (10YR 5/8) mottles, thin discontinuous gray (5Y 5/1) clay coatings (some coatings of dark gray (10YR 4/1)), and with root channels also coated with dark gray (10YR 4/1); silty clay loam; weak to moderate medium prismatic structure; firm; roots occasional; neutral; gradual smooth boundary.
B3g	40 to 48 inches. Gray (5Y 5/1) with many coarse prominent yellowish brown (10YR 5/8) mottles, thin discontinuous gray (5Y 5/1) clay coatings (some coatings of dark gray (10YR 4/1)), and with root channels also coated with dark gray (10YR 4/1); light silty clay loam; weak coarse prismatic structure; slightly firm; roots none; mildly alkaline; gradual smooth boundary.
Cg	48 to 60 inches plus. Gray (5Y 5/1) with many coarse prominent yellowish brown (10YR 5/8) mottles, root channels coated with dark gray (10YR 4/1), and worm channels coated with very dark gray (10YR 3/1); silt loam; massive; friable; roots none; moderately alkaline.

Remarks: All Munsell color notations are for fully moist conditions unless otherwise indicated.
Numerous worm channels in C horizon coated with very dark gray (10YR 3/1) clay coatings. Some coatings almost 1 mm. thick.
Many krotovina (old crayfish burrows) noted in pit. They are filled with very dark gray (10YR 3/1) silty clay loam material. Some occasionally have subsoil colors mixed in the dark material. Considerable "pea" size pebbles in krotovina material.
Water entered pit at about 48" depth; mainly through earthworm channels.
Numerous root pores through peds.

SABLE SILTY CLAY LOAM (61,02,P,b)

```
     WEIGHT  PERCENT  AND  VOLUME  PERCENT  OF  WATER  RETAINED

IDENTIFICATION        T E N S I O N S  (BARS)
                                                                  BD        TP         K
61   2   1   2     .1         .3         .6         3.         15.        G/CC      PCT      IN/HR

    DEPTH                                                                    1
     0             33.80      31.94      30.29      27.19      19.06      1.33      49.81       .32
                   44.95      42.48      40.28      36.16      25.34      1.60      39.62       .80
                   FRAGMENT   30.69                   SIEVED   17.34ROCK  PERCENT    4.35
                                                                             1
    13             31.98      31.79      30.26      27.43      21.31      1.35      49.06       .59
                   43.17      42.91      40.85      37.03      28.76      1.63      38.49       .60
                   FRAGMENT   30.38                   SIEVED   17.59ROCK  PERCENT   46.76
                                                                             1
    18             32.44      31.14      29.59      26.06      19.18      1.37      48.30       .19
                   44.44      42.66      40.53      35.70      26.27      1.78      32.83       .57
                   FRAGMENT   29.73                   SIEVED   19.12ROCK  PERCENT    5.27
                                                                             1
    24             33.33      30.46      29.35      26.44      18.88      1.41      46.79       .27
                   46.99      42.94      41.38      37.28      26.62      1.77      33.21      1.27
                   FRAGMENT   28.94                   SIEVED   16.12ROCK  PERCENT
                                                                             1
    31             33.75      28.65      27.90      22.92      14.63      1.45      45.28      4.88
                   48.93      41.54      40.45      33.23      21.21      1.56      41.13       .31
                   FRAGMENT   28.47                   SIEVED   12.50ROCK  PERCENT
                                                                             1
    40             36.07      29.78      28.90      23.97      17.25      1.47      44.53      2.05
                   53.02      43.77      42.48      35.23      25.35      1.54      41.89      1.56
                   FRAGMENT   27.41                   SIEVED   13.53ROCK  PERCENT
                                                              (20.99)        1
    48             27.89      25.75      24.76      23.09      13.22      1.50      43.40       .04
                   41.83      38.62      37.14      34.63      19.83      1.56      41.13        0
                   FRAGMENT   24.59                   SIEVED   15.12ROCK  PERCENT    4.17

     1=FIST
     2=CORE
     3=LOOSE
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DRUMMER SILTY CLAY LOAM (61,02,C,a)

Location: Piatt Co., T18N R5E, Sec. 16, SW160 NW40 SW10 SW2½, 144' E from N-S fence, 90' N from E-W lane fence.
Vegetation and land use: Wheat stubble with seeding of clover.
Topography: ½ percent, north, concave; nearly level to gently sloping Wisconsin age glacial topography.
Drainage: Poor
Parent Material: Loess or waterlaid silty material over moderately coarse textured outwash.
Described and sampled by: G. W. Hudelson and G. A. Schumaker

Horizon	Description
Ap	0 to 7 inches. Black (10YR 2/1) silty clay loam; very weak granular structure; firm; roots common; moderately alkaline; abrupt smooth boundary.
A12	7 to 12 inches. Black (10YR 2/1) with a very few peds of grayish brown (2.5Y 5/2); silty clay loam; weak to moderate fine and medium granular structure; firm; roots common; neutral; clear smooth boundary.
A3	12 to 16 inches. Black (10YR 2/1) with many peds of light olive brown (2.5Y 5/4); silty clay loam; weak to moderate very fine and fine subangular blocky structure; firm; roots common; medium acid; clear smooth boundary.
B21g	16 to 24 inches. Grayish brown (2.5Y 5/2) with few fine distinct yellowish brown (10YR 5/8) mottles, thin continuous dark gray (10YR 4/1) clay coatings (some coatings of very dark gray (10YR 3/1)); silty clay loam; weak to moderate fine subangular blocky structure; firm; roots occasional; medium acid; gradual smooth boundary.
B22g	24 to 36 inches. Light olive brown (2.5Y 5/3) with many medium distinct yellowish brown (10YR 5/8) mottles, thin discontinuous gray to dark gray (10YR 5/1-4/1) clay coatings (occasional very dark gray (10YR 3/1) coatings), and a few black (5YR 2/1) Fe-Mn concretions; silty clay loam; weak to moderate medium subangular blocky structure; firm; roots occasional; mildly alkaline; gradual smooth boundary.

Remarks: All Munsell color notations are for fully moist conditions unless otherwise indicated.
Water entered pit at 34".
A few pebbles noted throughout profile.
No B1g separated; A3 appeared to be only transitional horizon.
Sandy loam material at 50" (boring by worm auger).

DRUMMER SILTY CLAY LOAM (61,02,C,a)

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      WEIGHT  PERCENT  AND  VOLUME  PERCENT  OF  WATER  RETAINED

IDENTIFICATION       T E N S I O N S  (BARS)
                                                                BD        TP        K
61   2   2   1     .1         .3        .6        3.        15.        G/CC      PCT     IN/HR

     DEPTH                                                                 2
      0            31.11      28.83     28.04     26.84     14.80      1.37      48.30
                   42.62      39.49     38.41     36.77     20.27
                   FRAGMENT                        SIEVED 16.78ROCK PERCENT     .68
                                                                           2
      7            30.14      28.66     27.81     25.47     15.53      1.19      55.09
                   35.86      34.10     33.09     30.30     18.48
                   FRAGMENT                        SIEVED 15.15ROCK PERCENT    1.51
                                                                           1
     12            32.92      28.85     27.58     25.00     17.18      1.40      47.17     .79
                   46.08      40.39     38.61     35.00     24.05      1.73      34.72     .78
                   FRAGMENT 28.10                  SIEVED 25.10ROCK PERCENT   15.98
                                                                           1
     16            34.36      30.88     29.36     27.18     19.49      1.34      49.43     .29
                   46.04      41.37     39.34     36.42     26.11      1.76      33.58     .41
                   FRAGMENT 30.90                  SIEVED 18.07ROCK PERCENT   43.22

      1=FIST
      2=CORE
      3=LOOSE
```

DRUMMER SILTY CLAY LOAM (61,02,C,b)

Location: Piatt Co., T18N R5E, Sec. 16, SW160 NW40 SW10 SW2½, 138' E from N-S fence line, 240' N from north E-W lane fence.
Vegetation and land use: Wheat stubble with seeding of clover.
Topography: ½ percent slope, NE, concave; nearly level to gently sloping Wisconsin age glacial topography.
Drainage: Poor
Parent Material: Loess or waterlaid silty material over moderately coarse textured glacial outwash.
Described and sampled by: G. W. Hudelson and G. A. Schumaker

Horizon	Description
Ap	0 to 7 inches. Black (10YR 2/1) silty clay loam; very weak fine granular structure with areas which are massive; firm; roots common; neutral; abrupt smooth boundary.
A12	7 to 12 inches. Black (10YR 2/1) silty clay loam; weak to moderate fine and medium granular structure; firm; roots common; slightly acid; clear smooth boundary.
A3	12 to 16 inches. Black (10YR 2/1) with occasional peds of dark gray (10YR 4/1); silty clay loam; weak to moderate very fine subangular blocky structure; firm; roots occasional; slightly acid; clear smooth boundary.
B21g	16 to 25 inches. Dark grayish brown to grayish brown (2.5Y 4.5/2) with few fine distinct yellowish brown (10YR 5/8) mottles and thin continuous grayish brown (10YR 5/2) clay coatings (occasional very dark gray (10YR 3/1) clay coatings); silty clay loam; moderate fine subangular blocky structure; firm; roots common; slightly acid; gradual smooth boundary.

Remarks: All Munsell color notations are for fully moist conditions unless otherwise indicated.
A few pebbles noted in A3 and B21.
Water in pit at 19".
Loam material at 53" depth (determined by worm auger).
Could not separate a B1 horizon; if present it would be too thin for sampling purposes.

MONTICELLO, ILLINOIS

DRUMMER SILTY CLAY LOAM (61,02,C,b)

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       WEIGHT  PERCENT  AND  VOLUME  PERCENT  OF  WATER  RETAINED

IDENTIFICATION          T E N S I O N S  (BARS)
                                                                    BD       TP
61   2   2   2     .1        .3        .6        3.        15.      G/CC     PCT

     DEPTH                                                               2
      0           33.43     29.60     29.25     27.32     17.02     1.37     48.30
                  45.79     40.55     40.07     37.42     23.31
                  FRAGMENT                        SIEVED 16.53ROCK PERCENT
                                                                         2
      7           36.50     33.22     31.89     30.03     19.79     1.31     50.57
                  47.81     43.51     41.77     39.33     25.92
                  FRAGMENT                        SIEVED 17.67ROCK PERCENT  8.14
                                                                         2
     12           34.27     32.67     31.53     27.96     20.99     1.40     47.17
                  47.97     45.73     44.14     39.14     29.38
                  FRAGMENT                        SIEVED 17.39ROCK PERCENT  6.57
                                                                         3
     16           35.29     33.33     30.21     28.89     20.37     1.24     53.21
                  43.75     41.32     37.46     35.82     25.25
                  FRAGMENT                        SIEVED 23.72ROCK PERCENT 10.43

       1=FIST
       2=CORE
       3=LOOSE
```

ELBURN SILT LOAM (61,03,P,a)

Location: Piatt Co.; T18N R5E, Sec. 20, NE160 NE40 NW10 NW2½, 75' S from section line.
Vegetation and land use: Bluegrass sod with a few scattered wild cherry trees.
Topography: 4 percent slopes, SW, convex; gently sloping Wisconsin age glacial topography.
Drainage: Somewhat poorly drained
Parent Material: Loess over medium textured outwash.
Described and sampled by: G. W. Hudelson and G. A. Schumaker

Horizon	Description
A1	0 to 12 inches. Black (10YR 2/1) silt loam; moderate fine granular structure; friable; roots abundant; medium acid; clear smooth boundary.
A3	12 to 17 inches. Very dark brown (10YR 2/2) with some peds of olive brown (2.5Y 4/4); silt loam; moderate medium granular structure; friable; roots abundant; medium acid; clear smooth boundary.
B1t	17 to 23 inches. Olive brown (2.5Y 4/4) with few fine faint yellowish brown (10YR 5/6) mottles and some very dark brown (10YR 2/2) organic matter coatings; light silty clay loam; moderate very fine subangular blocky structure; slightly firm; roots common; medium acid; clear smooth boundary.
B21t	23 to 31 inches. Dark yellowish brown (10YR 4/4) with few medium distinct yellowish brown (10YR 5/6) and few fine distinct light brownish gray (10YR 6/2) mottles and thin discontinuous dark brown (10YR 3/3) clay coatings (some worm channels have very dark grayish brown (10YR 3/2) clay coatings); silty clay loam; moderate fine and medium subangular blocky structure; firm; roots common; medium acid; clear smooth boundary.
B22t	31 to 39 inches. Dark grayish brown to grayish brown (2.5Y 4.5/2) with common medium distinct yellowish brown (10YR 5/6) and light brownish gray (10YR 6/2) mottles and thin discontinuous dark brown (10YR 4/3) and a few dark gray (10YR 4/1) clay coatings; silty clay loam; weak to moderate medium and coarse subangular blocky structure; firm; roots occasional; slightly acid; clear smooth boundary.
IIB3	39 to 48 inches. Mixed yellowish brown (10YR 5/6-70%) and dark grayish brown (10YR 4/2-30%) with a few patches of dark brown (10YR 4/3) clay coatings and some worm casts of very dark gray (10YR 3/1); gritty silt loam; very weak coarse subangular blocky structure; slightly firm; roots occasional; mildly alkaline; clear smooth boundary.
IIC1	48 to 54 inches. Yellowish brown (10YR 5/6) with common medium faint yellowish brown (10YR 5/8) mottles and with much of the horizon coated with very dark brown (10YR 3/2); heavy sandy loam; massive; friable; roots none; moderately alkaline; abrupt smooth boundary.
IIC2	54 to 60 inches plus. Stratified bands from 1/8 to 3/4 inch thick; mainly medium sand, loam, very fine sand, and some coarse sand and gravel; single grain; loose; moderately alkaline but no effervescence with HCl.

Remarks: All Munsell color notations are for fully moist conditions unless otherwise indicated.
Sand grains were noted in all horizons of the subsoil.
Numerous root pores also noted in all horizons of the subsoil.
IIC2 showed excellent example of stratification.
Ground water entered pit at 55" depth.

ELBURN SILT LOAM (61,03,P,a)

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     WEIGHT  PERCENT  AND  VOLUME  PERCENT  OF  WATER  RETAINED

IDENTIFICATION        T E N S I O N S  (BARS)
                                                                BD       TP       K
61   3   1   1     .1       .3       .6       3.       15.     G/CC     PCT    IN/HR

     DEPTH                                                        1
      0          33.47    30.37    27.51    26.19    13.84     1.26    52.45    1.05
                 42.17    38.26    34.66    32.99    17.43     1.39    47.55     0
                 FRAGMENT 29.49              SIEVED 13.42ROCK PERCENT  1.14
                                                                  1
     12          32.05    27.31    26.19    24.34    16.62     1.35    49.06     .30
                 43.26    36.86    35.35    32.85    22.43     1.54    41.89    5.57
                 FRAGMENT 26.58              SIEVED 21.06ROCK PERCENT  9.94
                                                                  1
     17          31.97    28.34    27.65    24.56    18.29     1.38    47.92     .10
                 44.11    39.10    38.15    33.89    25.24     1.60    39.62     .06
                 FRAGMENT 27.84              SIEVED 14.66ROCK PERCENT
                                                                  1
     23          32.91    29.23    28.64    24.25    17.76     1.46    44.91     .66
                 48.04    42.67    41.81    35.40    25.92     1.61    39.25     .15
                 FRAGMENT 28.54              SIEVED 14.53ROCK PERCENT
                                                                  1
     31          32.72    29.01    26.49    23.97    15.46     1.51    43.02     .12
                 49.40    43.80    39.99    36.19    23.34     1.66    37.36     .22
                 FRAGMENT 28.12              SIEVED 12.22ROCK PERCENT
                                                                  1
     39          22.97    19.44    18.43    16.29     9.00     1.61    39.25     .33
                 36.98    31.29    29.67    26.22    14.49     1.73    34.72     .72
                 FRAGMENT 17.67              SIEVED  9.76ROCK PERCENT  2.41
                                                                  1
     48          20.86    19.76    18.05    15.50     8.99     1.65    37.74     .29
                 34.41    32.60    29.78    25.57    14.83     1.72    35.09     .60
                 FRAGMENT 18.12              SIEVED  8.57ROCK PERCENT  8.74
                                                                  1
     54          18.73    16.55    15.25    12.85     7.04     1.58    40.38
                 29.59    26.14    24.09    20.30    11.12     1.70    35.85
                 FRAGMENT 16.04              SIEVED  9.45ROCK PERCENT 43.93

     1=FIST
     2=CORE
     3=LOOSE
```

IPAVA SILT LOAM (61,03,P,b)

Location: Piatt Co., T18N R5E, Sec. 20, NE160 NE40 NW10 NW2½, 42' S from E-W section line.
Vegetation and land use: Bluegrass sod
Topography: 3 percent slopes, SW, convex; gently sloping Wisconsin age glacial topography.
Drainage: Somewhat poorly drained
Parent Material: Loess over medium textured outwash.
Described and sampled by: G. W. Hudelson and G. A. Schumaker

Horizon	Description
A1	0 to 10 inches. Black (10YR 2/1) silt loam; moderate fine and medium granular structure; friable; roots abundant; medium acid; clear smooth boundary.
A3	10 to 14 inches. Very dark brown (10YR 2/2) with some peds of dark yellowish brown (10YR 4/4); silt loam; moderate medium granular structure; friable; roots abundant; medium acid; clear smooth boundary.
B1t	14 to 18 inches. Dark yellowish brown (10YR 4/4) with a few fine distinct yellowish brown (10YR 5/6), thin continuous dark yellowish brown (10YR 3/4) clay coatings (some coatings of black (10YR 2/1) and very dark brown (10YR 2/2)), a few black (5YR 2/1) Fe-Mn concretions, and an occasional worm cast of black (10YR 2/1); light silty clay; moderate very fine and fine subangular blocky structure; firm; roots common; medium acid; clear smooth boundary.
B21t	18 to 26 inches. Olive brown (2.5Y 4/4) with few fine prominent strong brown (7.5YR 5/8) and few fine distinct yellowish brown (10YR 5/6) mottles, thin discontinuous dark yellowish brown (10YR 3/4) clay coatings, a few worm casts of dark yellowish brown (10YR 3/4) and black (10YR 2/1), and numerous black (5YR 2/1) Fe-Mn concretions; silty clay loam; weak to moderate fine and medium subangular blocky structure; firm; roots occasional; medium acid; clear smooth boundary.
B22t	26 to 37 inches. Light olive brown to olive brown (2.5Y 4.5/4) with few coarse prominent strong brown (7.5YR 5/8), common medium distinct yellowish brown (10YR 5/6), few fine distinct light brownish gray (10YR 6/2) mottles; thin continuous dark grayish brown (10YR 4/2) clay coatings (some patches of very dark grayish brown (10YR 3/2) and dark yellowish brown (10YR 3/4) clay coatings), and numerous black (5YR 2/1) Fe-Mn concretions; silty clay loam; weak medium prismatic breaking to weak to moderate medium subangular blocky structure; firm; roots occasional; neutral; clear smooth boundary.
B3	37 to 49 inches. Yellowish brown (10YR 5/6) with common medium faint yellowish brown (10YR 5/8) and common medium distinct light brownish gray (10YR 6/2) mottles, thin continuous dark grayish brown (10YR 4/2) clay coatings, occasional worm channels coated with clay coatings of dark gray (10YR 4/1) and black (10YR 2/1), numerous root channels also coated with dark grayish brown (10YR 4/2) clay coatings, and a few black (5YR 2/1) Fe-Mn concretions; heavy silt loam; weak coarse prismatic structure; friable; roots none; mildly alkaline; gradual wavy boundary.
C	49 to 60 inches plus. Yellowish brown (10YR 5/6) with common medium faint yellowish brown (10YR 5/6) and light brownish gray (10YR 6/2) mottles, root channels mostly coated with dark gray (10YR 4/1) but with some coats of black (10YR 2/1) and very dark grayish brown (10YR 3/2), and a few black (5YR 2/1) Fe-Mn concretions; silt loam; massive; roots none; moderately alkaline.

Remarks: All Munsell color notations are for fully moist conditions unless otherwise indicated.
Krotovina (old crayfish burrow) in B3 about 2" in diameter filled with light brownish gray (10YR 6/2) silt loam material. Worm channels through material coated with dark gray (10YR 4/1) clay coatings.
Tonguing of clay coatings in upper part of C horizon were noted.
Sand grains were noted in B3 and C horizons; sandy material was found at 61".
Numerous root pores can be seen in ped faces.
Ground water at 58" depth.

MONTICELLO, ILLINOIS

IPAVA SILT LOAM (61,03,P,b)

```
      WEIGHT  PERCENT  AND  VOLUME  PERCENT  OF  WATER  RETAINED

IDENTIFICATION        T E N S I O N S  (BARS)
                                                                BD       TP        K
61   3   1   2     .1        .3        .6        3.        15.      G/CC     PCT      IN/HR

     DEPTH                                                            1
      0            34.07     30.99     28.29     24.17     13.30     1.25     52.83     7.52
                   42.58     38.73     35.36     30.21     16.62     1.38     47.92     9.62
                   FRAGMENT  29.57                 SIEVED  16.62ROCK  PERCENT  2.67
                                                                      1
     10            33.33     31.07     28.04     25.74     15.97     1.29     51.32     2.28
                   42.99     40.08     36.17     33.20     20.60     1.46     44.91     2.75
                   FRAGMENT  29.17                 SIEVED  14.54ROCK  PERCENT
                                                                      1
     14            33.91     30.36     27.99     23.90     17.32     1.32     50.19     1.95
                   44.76     40.07     36.94     31.54     22.86     1.53     42.26     1.67
                   FRAGMENT  29.95                 SIEVED  14.46ROCK  PERCENT
                                                                      1
     18            33.16     31.97     29.55     23.99     18.69     1.35     49.06      .45
                   44.76     43.15     39.89     32.38     25.23     1.62     38.87      .15
                   FRAGMENT  29.93                 SIEVED  22.72ROCK  PERCENT 17.64
                                                                      1
     26            33.49     30.96     30.11     24.77     18.77     1.35     49.06     4.30
                   45.21     41.79     40.64     33.43     25.33     1.47     44.53     7.14
                   FRAGMENT  30.60                 SIEVED  22.38ROCK  PERCENT 41.47
                                                                      1
     37            34.04     31.12     29.11     25.95     17.66     1.50     43.40     1.26
                   51.06     46.68     43.66     38.92     26.49     1.67     36.98      .07
                   FRAGMENT  30.14                 SIEVED  13.37ROCK  PERCENT
                                                                      1
     49            28.26     24.86     23.98     17.05      8.94     1.39     47.55     1.02
                   39.28     34.55     33.33     23.69     12.42     1.41     46.79      .29
                   FRAGMENT  24.30                 SIEVED   7.60ROCK  PERCENT

      1=FIST
      2=CORE
      3=LOOSE
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IPAVA SILT LOAM (61,03,C,a)

Location: Piatt Co., T18N R5E, Sec. 17, SE160 NW40 SW10 SE2½, 480' E from field gate, 44' S into field.
Vegetation and land use: Corn
Topography: 1 percent slope, East, slightly convex; nearly level to gently sloping Wisconsin age glacial topography.
Parent Material: Loess Drainage: Somewhat poorly drained.
Described and sampled by: G. W. Hudelson and G. A. Schumaker

Horizon	Description
Ap	0 to 7 inches. Black (10YR 2/1) silt loam; very weak fine granular structure with areas that are massive; friable; roots abundant; neutral; abrupt smooth boundary.
A3	7 to 13 inches. Very dark gray (10YR 3/1) with some peds of yellowish brown (10YR 5/6), mostly in lower portion, and some black (10YR 2/1) coatings, mostly in upper portion; silt loam; moderate fine and medium granular structure; friable; roots common; medium acid; clear smooth boundary.
B21t	13 to 21 inches. Yellowish brown (10YR 5/6) with thin continuous grayish brown (2.5Y 5/2) clay coatings (some coatings of dark grayish brown (10YR 4/2)); silty clay loam; moderate fine subangular blocky structure; firm; roots occasional; medium acid; clear smooth boundary.
B22t	21 to 29 inches. Light olive brown (2.5Y 5/4) with few fine distinct yellowish brown (10YR 5/8) mottles, thin continuous dark grayish brown (10YR 4/2) clay coatings (some coatings of dark gray (10YR 4/1) and numerous black (5YR 2/1) Fe-Mn concretions; silty clay loam; very weak prismatic breaking to moderate medium subangular blocky structure; firm; roots occasional; medium acid; clear smooth boundary.
B23t	29 to 38 inches. Mixed yellowish brown (10YR 5/8-70%) and light grayish brown (10YR 6/2-30%) with thin discontinuous dark gray (10YR 4/1) clay coatings and worm and root channels coated with very dark gray (10YR 3/1) and dark gray (10YR 4/1); silty clay loam; very weak medium prismatic breaking to moderate medium and coarse subangular blocky structure; firm; roots occasional; medium acid.

Remarks: All Munsell color notations are for fully moist conditions unless otherwise indicated.
Water entered pit at 33".
Some grittiness at 57"; probably contact with outwash or glacial till.
Numerous pores in ped faces.
No B1 was separated; appeared to go directly from A3 to B21.

MONTICELLO, ILLINOIS

IPAVA SILT LOAM (61,03,C,a)

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     WEIGHT  PERCENT  AND  VOLUME  PERCENT  OF  WATER  RETAINED

IDENTIFICATION       T E N S I O N S  (BARS)
                                                                BD        TP        K
61   3   2   1      .1        .3        .6        3.        15.        G/CC      PCT      IN/HR

     DEPTH                                                              2
      0            32.25     28.42     28.16     26.53     25.16     1.29     51.32
                   41.60     36.66     36.32     34.22     32.45
                   FRAGMENT                         SIEVED 14.98ROCK PERCENT 10.81
                                                                        1
      7            35.71     27.71     27.66     24.44     15.48     1.32     50.19     1.26
                   47.13     36.57     36.51     32.26     20.43     1.44     45.66     1.70
                   FRAGMENT 26.32                   SIEVED 17.31ROCK PERCENT  4.44
                                                                        1
     13            34.57     31.06     30.68     26.36     20.76     1.35     49.06     7.37
                   46.66     41.93     41.41     35.58     28.02     1.62     38.87     2.28
                   FRAGMENT 29.78                   SIEVED 22.15ROCK PERCENT  1.32
                                                                        1
     21            40.85     34.63     31.11     27.69     21.53     1.35     49.06     1.07
                   55.14     46.75     41.99     37.38     29.06     1.59     40.00      .63
                   FRAGMENT 32.53                   SIEVED 22.24ROCK PERCENT   .30

      1=FIST
      2=CORE
      3=LOOSE
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MONTICELLO, ILLINOIS

IPAVA SILT LOAM (61,03,C,b)

Location: Piatt Co., T18N R5E, Sec. 17, SE160 SE40 NE10 NE2½, end of lane 56' S from south fence of lane, 108' W from N-S fence line.
Vegetation and land use: Soybean stubble
Topography: ½ percent slope, East, slightly convex; nearly level to gently sloping Wisconsin age glacial topography.
Drainage: Somewhat poorly drained
Parent Material: Loess
Described and sampled by: G. W. Hudelson and G. A. Schumaker

Horizon	Description
Ap	0 to 8 inches. Very dark brown (10YR 2/2) silt loam; very weak very fine and fine granular structure with areas which are massive; slightly sticky; roots abundant; medium acid; abrupt smooth boundary.
A3	8 to 13 inches. Black to very dark brown (10YR 2/1.5) with some peds of olive brown (2.5Y 4/4); silt loam; moderate fine granular structure; friable; roots common; medium acid; clear smooth boundary.
B21t	13 to 19 inches. Olive brown (2.5Y 4/4) with few fine faint yellowish brown (10YR 5/6) mottles and thin continuous dark grayish brown (10YR 4/2) clay coatings (some coatings of very dark gray (10YR 3/1); silty clay loam; moderate very fine subangular blocky structure; firm; roots occasional; medium acid; clear smooth boundary.
B22t	19 to 26 inches. Light olive brown (2.5Y 5/4) with few fine distinct yellowish brown (10YR 5/8), thin discontinuous very dark gray (10YR 3/1) and dark gray (10YR 4/1) clay coatings and a few black (5YR 2/1) Fe-Mn concretions; silty clay loam; moderate fine subangular blocky structure; firm; roots occasional; slightly acid; clear smooth boundary.
B23t	26 inches plus. Light olive brown (2.5Y 5/4) with few fine distinct yellowish brown (10YR 5/8) mottles, thin discontinuous dark gray (10YR 4/1) and very dark gray (10YR 3/1) clay coatings, and a few black (5YR 2/1) Fe-Mn concretions; silty clay loam; moderate medium subangular blocky structure; firm; roots occasional; slightly acid.

Remarks: All Munsell color notations are for fully moist conditions unless otherwise indicated.
Ap at field capacity moisture; water filled pit to 26".
Could not separate a B1.

IPAVA SILT LOAM (61,03,C,b)

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     WEIGHT  PERCENT  AND  VOLUME  PERCENT  OF  WATER  RETAINED

IDENTIFICATION       T E N S I O N S  (BARS)
                                                              BD        TP        K
61   3   2   2     .1        .3        .6        3.        15.       G/CC      PCT      IN/HR

    DEPTH                                                               2
     0             30.09     26.95     25.76     23.61     16.34     1.35      49.06
                   40.62     36.38     34.77     31.87     22.05
                   FRAGMENT                        SIEVED 10.41ROCK PERCENT
                                                          (16.44)       1
     8             30.95     27.21     26.86     24.74     16.96     1.35      49.06      3.25
                   41.78     36.73     36.26     33.39     22.89     1.54      41.89       .39
                   FRAGMENT 26.93                  SIEVED 16.12ROCK PERCENT
                                                                        1
    13             34.71     30.31     29.46     26.43     20.31     1.34      49.43      1.56
                   46.51     40.61     39.47     35.41     27.21     1.64      38.11      4.18
                   FRAGMENT 28.83                  SIEVED 17.14ROCK PERCENT
                                                                        1
    19             35.75     30.70     31.42     27.75     20.70     1.39      47.55      1.88
                   49.69     42.67     43.67     38.57     28.77     1.64      38.11       .88
                   FRAGMENT 29.47                  SIEVED 21.90ROCK PERCENT  3.85

     1=FIST
     2=CORE
     3=LOOSE
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MONTICELLO, ILLINOIS

VIRGIL SILT LOAM (61,04,P,a)

Location: Piatt Co., T18N R5E, Sec. 21, NW160 NW40 NW10 NE2½, 72' S from E-W section line.
Vegetation and land use: Bluegrass sod
Topography: 1 percent slope, West, slightly concave; gently sloping Wisconsin age glacial topography.
Parent Material: Loess over glacial outwash material. Drainage: Somewhat poorly drained.
Described and sampled by: G. W. Hudelson and G. A. Schumaker

Horizon	Description
A1	0 to 9 inches. Very dark grayish brown (10YR 3/2) with a few peds of dark yellowish brown; silt loam; moderate fine granular structure; friable; roots abundant; medium acid; abrupt smooth boundary.
A2	9 to 14 inches. Dark grayish brown (10YR 4/2) with occasional very dark grayish brown (10YR 3/2) coatings, some worm channels coated with very dark brown (10YR 2/2), and a few black (5YR 2/1) Fe-Mn concretions; silt loam; weak thin platy breaking to moderate fine and medium granular structure; friable; roots abundant; medium acid; abrupt smooth boundary.
B21t	14 to 20 inches. Dark yellowish brown (10YR 4/4) with few fine faint yellowish brown (10YR 5/6) mottles, thin continuous grayish brown (10YR 5/2) clay coatings, and a few black (5YR 2/1) and dark reddish brown (5YR 3/3) Fe-Mn concretions and stains; silty clay loam; moderate very fine and fine subangular blocky structure; firm; roots abundant; medium acid; clear smooth boundary.
B22t	20 to 29 inches. Olive brown (2.5Y 4/4) with common medium distinct (10YR 5/6) mottles, thin continuous grayish brown (2.5Y 5/2) clay coatings, and many black (5YR 2/1) Fe-Mn concretions; silty clay loam; weak medium prismatic breaking to moderate medium subangular blocky structure; firm; roots common; medium acid; clear smooth boundary.
B31t	29 to 39 inches. Mixed yellowish brown (10YR 5/6-40%) and grayish brown (10YR 5/2-60%) with few medium faint yellowish brown (10YR 5/8) mottles, and thin discontinuous grayish brown (2.5Y 5/2) clay coatings (some coatings of gray (10YR 5/1) and dark gray (10YR 4/1), and a few black (5YR 2/1) Fe-Mn concretions; silty clay loam; weak to moderate coarse subangular blocky structure; firm; roots common; medium acid; clear smooth boundary.
B32	39 to 48 inches. Mixed gray (10YR 6/1-40%) and yellowish brown (10YR 5/6-60%) with few medium faint yellowish brown (10YR 5/8) mottles, patches of grayish brown (2.5Y 5/2) clay coatings (some coatings of dark gray (10YR 4/1) and very dark gray (10YR 3/1); heavy silt loam; very weak coarse subangular blocky structure; slightly firm; roots occasional; medium acid; clear smooth boundary.
IIC1	48 to 57 inches. Mixed gray (10YR 6/1-40%) and yellowish brown (10YR 5/6-60%) with few medium faint (10YR 5/8) mottles, some tonguing of grayish brown (10YR 5/2) clay coatings into horizon, a few black (5YR 2/1) Fe-Mn concretions; loam; very weak coarse subangular blocky structure to massive; friable; roots occasional; medium acid; abrupt smooth boundary.
IIC2	57 to 60 inches plus. Dark yellowish brown (10YR 4/4) with some areas coated with dark yellowish brown (10YR 3/4); light sandy loam; single grain; loose; roots none; neutral.

Remarks: All Munsell color notations are for fully moist conditions unless otherwise indicated.
A few sand grains noted in B horizons.
Water seeped into pit at 54" depth.
Numerous root pores in ped faces.

VIRGIL SILT LOAM (61,04,P,a)

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     WEIGHT  PERCENT  AND  VOLUME  PERCENT  OF  WATER  RETAINED

IDENTIFICATION         T E N S I O N S  (BARS)
                                                              BD        TP        K
61   4   1   1     .1       .3       .6        3.        15.      G/CC      PCT     IN/HR

     DEPTH                                                          1
      0            31.40    27.08    26.00     21.27     10.17     1.27      52.08
                   39.87    34.39    33.02     27.01     12.91     1.38      47.92
                   FRAGMENT 27.31                SIEVED  8.97ROCK PERCENT   4.35
                                                                    1
      9            30.59    28.51    27.37     24.20     14.46     1.40      47.17      .28
                   42.82    39.91    38.31     33.88     20.24     1.53      42.26      .47
                   FRAGMENT 27.03                SIEVED 16.71ROCK PERCENT   2.57
                                                                    1
     14            34.11    29.95    28.97     24.70     18.08     1.36      48.68      .73
                   46.38    40.73    39.39     33.59     24.58     1.59      40.00     1.16
                   FRAGMENT 28.77                SIEVED 20.97ROCK PERCENT    .79
                                                                    1
     20            33.46    30.37    27.55     24.13     19.24     1.40      47.17     6.53
                   46.84    42.51    38.57     33.78     26.93     1.66      37.36     2.04
                   FRAGMENT 29.33                SIEVED 15.31ROCK PERCENT
                                                                    1
     29            34.69    31.76    29.67     22.60     16.78     1.38      47.92     2.25
                   47.87    43.82    40.94     31.18     23.15     1.49      43.77     1.34
                   FRAGMENT 38.69                SIEVED 14.44ROCK PERCENT   1.30
                                                                    1
     39            34.57    30.39    28.19     22.39     16.25     1.40      47.17      .40
                   48.39    42.54    39.46     31.34     22.75     1.53      42.26     1.86
                   FRAGMENT 29.07                SIEVED 18.15ROCK PERCENT   4.28
                                                                    1
     48            29.69    28.29    26.93     22.02     10.53     1.41      46.79     1.03
                   41.86    39.88    37.97     31.04     14.84     1.59      40.00     1.55
                   FRAGMENT 27.34                SIEVED 11.66ROCK PERCENT   8.07
                                                                    3
     57            15.80    14.33    13.05      9.63      5.60     1.57      40.75
                   24.80    22.49    20.48     15.11      8.79
                   FRAGMENT                      SIEVED  7.94ROCK PERCENT   8.86

     1=FIST
     2=CORE
     3=LOOSE
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VIRGIL SILT LOAM (61,04,P,b)

Location: Piatt Co., T18N R5E, Sec. 20, NE160 NE40 NE10 NE2½, 222' S from E-W section line, 237' W from N-S section line.
Vegetation and land use: Bluegrass sod
Topography: ½ percent slope, South, convex; gently sloping Wisconsin age glacial topography.
Drainage: Somewhat poorly drained.
Parent Material: Loess over glacial outwash material.
Described and sampled by: G. W. Hudelson and G. A. Schumaker

Horizon	Description
A1	0 to 8 inches. Very dark brown (10YR 2/2) silt loam; weak to moderate very fine to fine granular structure with some very weak thin platy structure in lower portion; friable; roots abundant; medium acid; abrupt smooth boundary.
A2	8 to 14 inches. Dark grayish brown (10YR 4/2) with a few peds of olive brown (2.5Y 4/4), a few very dark brown (10YR 2/2) coatings in upper portion, a few worm casts of black (10YR 2/1); silt loam; moderate thin platy structure breaking to weak medium granular structure (some blocky structure in lower portion); friable; roots abundant; strongly acid; clear smooth boundary.
B1t	14 to 20 inches. Dark brown to brown (10YR 4/3) with few fine faint yellowish brown (10YR 5/6) mottles and thin continuous dark grayish brown to grayish brown (10YR 4.5/2) (some patches of dark grayish brown (10YR 4/2)); light silty clay loam; weak to moderate very fine and fine subangular blocky structure; firm; roots common; strongly acid; clear smooth boundary.
B21t	20 to 28 inches. Yellowish brown (10YR 5/6) with few fine faint yellowish brown (10YR 5/8) and light brownish gray (10YR 6/2) mottles, thin continuous grayish brown (10YR 5/2) clay coatings (some coatings of dark grayish brown (10YR 4/2)), and a few black (5YR 2/1) Fe-Mn concretions; silty clay loam; moderate medium subangular blocky structure; firm; roots common; medium acid; gradual smooth boundary.
B22t	28 to 40 inches. Mixed yellowish brown (10YR 5/6-70%) and light grayish brown (10YR 6/2-30%) with common medium faint yellowish brown (10YR 5/8) mottles, thin discontinuous dark grayish brown (10YR 4/2) and grayish brown (10YR 5/2) clay coatings, some very dark gray (10YR 3/1) coatings in worm channels and root channels also coated with grayish brown (10YR 5/2) clay coatings; silty clay loam; weak medium prismatic breaking to weak to moderate coarse subangular blocky structure; firm; roots occasional; medium acid; gradual smooth boundary.
B3t	40 to 46 inches. Mixed yellowish brown (10YR 5/6) and light brownish gray (10YR 6/2) with few fine faint yellowish brown (10YR 5/8) mottles, occasional grayish brown (10YR 5/2) and dark grayish brown (10YR 4/2) clay coatings, and many root channels coated with very dark gray (10YR 3/1) clay coatings; light silty clay loam; weak coarse prismatic; slightly firm; roots none; slightly acid; clear smooth boundary.
IIC1	46 to 55 inches. Mixed yellowish brown (10YR 5/8-80%) and gray (10YR 6/1-20%) with a few scattered patches of gray brown (10YR 5/2) clay coatings and many root channels coated with black (10YR 2/1) clay coatings; loam; massive; friable; roots none; neutral; abrupt smooth boundary.
IIC2	55 to 60 inches plus. Dark brown (10YR 4/3) with few fine distinct yellowish brown (10YR 5/6 and 5/8) mottles, occasional worm channels of black (10YR 2/1) and a few areas of dark grayish brown (10YR 4/2); light sandy loam; single grain; loose; roots none; neutral.

Remarks: All color notations are for fully moist conditions unless otherwise indicated.
A few pebbles and sand grains noted in upper B horizons.
Water seeps into pit at 34" depth.
Numerous root pores in peds.

MONTICELLO, ILLINOIS

VIRGIL SILT LOAM (61,04,P,b)

WEIGHT PERCENT AND VOLUME PERCENT OF WATER RETAINED

IDENTIFICATION	TENSIONS (BARS)							
61 4 1 2	.1	.3	.6	3.	15.	BD G/CC	TP PCT	K IN/HR
DEPTH						1		
0	31.74	28.71	25.35	20.20	10.12	1.33	49.81	.43
	42.21	38.18	33.71	26.86	13.45	1.42	46.42	.28
	FRAGMENT	26.71		SIEVED	8.79ROCK	PERCENT	.57	
						1		
8	32.66	29.21	26.73	20.27	11.83	1.33	49.81	1.07
	43.43	38.84	35.55	26.95	15.73	1.43	46.04	.66
	FRAGMENT	27.03		SIEVED	12.52ROCK	PERCENT	9.82	
						1		
14	31.99	28.82	27.22	22.14	16.23	1.41	46.79	.88
	45.10	40.63	38.38	31.21	22.88	1.57	40.75	1.03
	FRAGMENT	27.40		SIEVED	18.07ROCK	PERCENT	10.47	
						1		
20	35.63	31.60	27.94	24.44	16.60	1.34	49.43	2.86
	47.74	42.34	37.43	32.74	22.24	1.62	38.87	.90
	FRAGMENT	29.35		SIEVED	15.34ROCK	PERCENT	16.71	
						1		
28	35.01	31.19	28.02	24.11	16.82	1.36	48.68	.72
	47.61	42.41	38.10	32.78	22.87	1.48	44.15	.18
	FRAGMENT	29.06		SIEVED	16.31ROCK	PERCENT	.59	
						1		
40	29.91	22.52	21.96	18.83	10.58	1.46	44.91	.81
	43.66	32.87	32.06	27.49	15.44	1.57	40.75	.03
	FRAGMENT	21.92		SIEVED	13.68ROCK	PERCENT	12.47	
						3		
46	21.34	18.51	15.56	16.80	8.55	1.44	45.66	
	30.72	26.65	22.40	24.19	12.31			
	FRAGMENT			SIEVED	9.08ROCK	PERCENT	15.08	

1=FIST
2=CORE
3=LOOSE

VIRGIL SILT LOAM (61,04,P,c)

Location: Piatt Co., T18N R5E, Sec. 20, SE160 NW40 NW10 NW2½, 279' E from center of road, 33' S from hedge fence.
Vegetation and land use: Brushy bluegrass pasture with young hackberry, walnut.
Topography: ½ percent slope, North, slightly convex; nearly level to gently sloping Wisconsin age glacial topography.
Drainage: Somewhat poorly drained.
Parent Material: Loess over glacial outwash sediments.
Described and sampled by: G. W. Hudelson and G. A. Schumaker

Horizon	Description
A1	0 to 8 inches. Very dark grayish brown (10YR 3/2) silt loam; moderate fine and medium granular structure; friable; roots abundant; medium acid; clear smooth boundary.
A2	8 to 14 inches. Brown (10YR 5/3) with very dark grayish brown (10YR 3/2) coatings, mainly in upper portion, and many dark brown (10YR 4/3) coatings throughout the horizon; silt loam; very weak thin platy breaking to moderate medium granular structure; friable; roots common; strongly acid; clear smooth boundary.
B21t	14 to 20 inches. Brown (10YR 5/3) with few fine distinct yellowish brown (10YR 5/8) mottles and thin continuous grayish brown (10YR 5/2) clay coatings; silty clay loam; weak to moderate very fine and fine subangular blocky structure; firm; roots common; strongly acid; gradual smooth boundary.
B22t	20 to 28 inches. Yellowish brown (10YR 5/6) with common fine faint yellowish brown (10YR 5/8) mottles, thin continuous grayish brown (10YR 5/2) clay coatings, a few worm channels coated with very dark gray (10YR 3/1) clay coatings, and numerous black (5YR 2/1) Fe-Mn concretions; silty clay loam; moderate medium subangular blocky structure; firm; roots occasional; very strongly acid; gradual smooth boundary.
B23t	28 to 39 inches. Yellowish brown (10YR 5/6) with common fine faint yellowish brown (10YR 5/8) mottles, thin discontinuous grayish brown (10YR 5/2) clay coatings (occasional gray (10YR 6/1) clay coatings), and numerous black (5YR 2/1) Fe-Mn concretions; silty clay loam; weak to moderate coarse subangular blocky structure; firm; roots occasional; medium acid; gradual smooth boundary.
B31t	39 to 44 inches. Mixed yellowish brown (10YR 5/6-60%) and gray (10YR 6/1-40%) with common fine faint yellowish brown (10YR 5/8) mottles, patches of grayish brown (10YR 5/2) and gray (10YR 6/1) clay coatings and numerous black (5YR 2/1) Fe-Mn concretions; silty clay loam; weak coarse subangular blocky structure; firm; roots occasional; medium acid; clear wavy boundary.
IIB32	44 to 60 inches plus. Mixed yellowish brown (10YR 5/8-70%) and gray (10YR 6/1-30%) with occasional patches of grayish brown (10YR 5/2) clay coatings and root and worm channels coated with black (10YR 2/1) and very dark gray (10YR 3/1); sandy clay loam or clay loam; massive; slightly firm; roots none; neutral.

Remarks: All color notations are for fully moist conditions unless otherwise indicated.
No ground water within 60".
A few pebbles noted from the B22 on down.
Numerous root pores in ped faces.

MONTICELLO, ILLINOIS

VIRGIL SILT LOAM (61,04,P,c)

WEIGHT PERCENT AND VOLUME PERCENT OF WATER RETAINED

IDENTIFICATION	TENSIONS (BARS)							
61 4 1 3	.1	.3	.6	3.	15.	BD G/CC	TP PCT	K IN/HR
DEPTH						1		
0	31.24	29.36	28.45	27.27	12.31	1.20	54.72	5.01
	37.48	35.23	34.14	32.72	14.77	1.29	51.32	1.89
	FRAGMENT	28.69		SIEVED	10.11ROCK	PERCENT	3.71	
						1		
8	33.15	29.05	26.48	23.12	9.02	1.37	48.30	.45
	45.41	39.79	36.27	31.67	12.35	1.45	45.28	.54
	FRAGMENT	27.05		SIEVED	9.87ROCK	PERCENT	6.07	
						1		
14	29.03	26.69	23.88	20.98	14.15	1.40	47.17	2.28
	40.64	37.36	33.43	29.37	19.81	1.56	41.13	.58
	FRAGMENT	25.12		SIEVED	16.19ROCK	PERCENT	.50	
						1		
20	34.87	30.28	27.81	25.00	17.34	1.34	49.43	.94
	46.72	40.57	37.26	33.50	23.23	1.51	43.02	.83
	FRAGMENT	30.75		SIEVED	15.36ROCK	PERCENT	16.06	
						1		
28	35.82	32.25	28.48	24.45	18.00	1.40	47.17	8.82
	50.14	45.15	39.87	34.23	25.20	1.55	41.51	1.47
	FRAGMENT	30.65		SIEVED	15.18ROCK	PERCENT	42.66	
						1		
39	34.23	31.07	24.22	22.03	15.09	1.44	45.66	.42
	49.29	44.74	34.87	31.72	21.72	1.56	41.13	.13
	FRAGMENT	29.84		SIEVED	16.84ROCK	PERCENT	3.66	
						3		
44	24.33	19.83	17.13	14.78	8.98	1.47	44.53	
	35.76	29.15	25.18	21.72	13.20			
	FRAGMENT			SIEVED	8.24ROCK	PERCENT	3.06	

1=FIST
2=CORE
3=LOOSE

THORP SILT LOAM (61,05,P,a)

Location: Piatt Co., T18N R5E, Sec. 21, NW160 SW40 NW10 NW2½, 48' E from N-S section line, 60' N from high voltage pole with transformer.
Vegetation and land use: Bluegrass sod
Topography: ½ percent slope, NE, concave; gently sloping Wisconsin age glacial topography.
Drainage: Poor
Parent Material: Loess and glacial drift.
Described and sampled by: G. W. Hudelson and G. A. Schumaker

Horizon	Description
A11	0 to 6 inches. Dark brown (10YR 3/3) silt loam; weak thin platy breaking to moderate fine and medium granular structure; friable; roots abundant; medium acid; clear smooth boundary.
A12	6 to 10 inches. Dark brown (10YR 3/3) with many very dark brown (10YR 2/2) coatings; silt loam; weak thin platy breaking to fine and medium granular structure; friable; roots abundant; medium acid; clear smooth boundary.
A2	10 to 18 inches. Brown (10YR 5/3) with very dark grayish brown (10YR 3/2) and very dark gray (10YR 3/1) coatings mostly in upper portion; silt loam; weak to moderate medium granular structure with some blocky structure in lower portion; friable; roots occasional; medium acid; clear smooth boundary.
B21g (B & A)	18 to 24 inches. Brown (10YR 5/3) with common fine prominent strong brown (7.5YR 5/8) mottles, thin continuous grayish brown (2.5Y 5/2) clay coatings with occasional olive brown (2.5Y 4/3) clay coatings, and a few worm channels filled with very dark gray (10YR 3/1) material; light silty clay loam or heavy silt loam; weak to moderate fine subangular blocky structure; slightly firm; roots occasional; strongly acid; clear smooth boundary.
B22g	24 to 36 inches. Gray (5Y 6/1) with many medium prominent strong brown (7.5YR 5/8) mottles and thin continuous gray (5Y 6/1) clay coatings; silty clay loam; weak medium prismatic breaking to weak to moderate medium subangular blocky structure; firm; roots none; strongly acid; gradual smooth boundary.
B23g	36 to 47 inches. (Gray 5Y 6/1) with many medium prominent strong brown (7.5YR 5/8) mottles, thin continuous gray (5Y 6/1) clay coatings, and numerous black (5YR 2/1) Fe-Mn concretions; silty clay loam; weak coarse prismatic breaking to weak medium subangular blocky structure; firm; roots none; medium acid; gradual smooth boundary.
B3g	47 to 53 inches. Gray (5Y 6/1) with many medium prominent strong brown (7.5YR 5/8) mottles, thin continuous gray (5Y 6/1) clay coatings, and numerous black (5YR 2/1) Fe-Mn concretions; silty clay loam; very weak coarse prismatic structure; slightly firm; roots none; medium acid; gradual smooth boundary.
IICg	53 to 60 inches plus. Gray (5Y 6/1) with many medium prominent (7.5YR 5/8) mottles and numerous black (5YR 2/1) Fe-Mn concretions; loam; massive; friable; roots none; medium acid.

Remarks: All Munsell color notations are for fully moist conditions unless otherwise indicated.
Water entered pit at 37" depth; very difficult to determine structure below point where water entered ped faces being overly moist.
Sand grains and a few pebbles noted in B horizons.
B21 appears to B and A horizon; has color of A2, areas of similar texture as A2; but structure of B and some areas with similar texture of B.

MONTICELLO, ILLINOIS

THORP SILT LOAM (61,05,P,a)

WEIGHT PERCENT AND VOLUME PERCENT OF WATER RETAINED

IDENTIFICATION	TENSIONS (BARS)							
61 5 1 1	.1	.3	.6	3.	15.	BD G/CC	TP PCT	K IN/HR
DEPTH						1		
0	31.08	28.86	23.56	19.57	9.06	1.43	46.04	.62
	44.44	41.26	33.69	27.98	12.95	1.52	42.64	.60
	FRAGMENT	27.51		SIEVED	15.06ROCK	PERCENT		
					(12.55)	1		
6	31.16	26.76	24.47	18.68	9.14	1.34	49.43	3.62
	41.75	35.85	32.78	25.03	12.24	1.43	46.04	1.54
	FRAGMENT	26.28		SIEVED	7.89ROCK	PERCENT		
						1		
10	30.25	25.58	24.27	17.97	9.94	1.41	46.79	2.03
	42.65	36.06	34.22	25.33	14.01	1.50	43.40	.86
	FRAGMENT	24.18		SIEVED	8.03ROCK	PERCENT	3.43	
						1		
18	25.47	25.22	22.56	18.00	7.89	1.44	45.66	1.58
	36.67	36.31	32.48	25.92	11.36	1.53	42.26	1.40
	FRAGMENT	23.51		SIEVED	9.83ROCK	PERCENT	13.52	
						1		
24	30.13	25.53	25.00	20.67	10.27	1.40	47.17	.15
	42.18	35.74	35.00	28.93	14.37	1.58	40.38	.30
	FRAGMENT	25.90		SIEVED	12.90ROCK	PERCENT	33.21	
						1		
36	32.59	26.75	26.66	21.05	14.58	1.48	44.15	.92
	48.23	39.59	39.45	31.15	21.57	1.66	37.36	4.34
	FRAGMENT	24.13		SIEVED	13.63ROCK	PERCENT	26.00	
						1		
47	33.98	28.04	27.63	21.05	13.96	1.48	44.15	.13
	50.29	41.49	40.89	31.15	20.66	1.64	38.11	.09
	FRAGMENT	26.83		SIEVED	14.79ROCK	PERCENT	21.39	
						1		
53	31.92	28.01	27.31	20.48	12.11	1.48	44.15	.87
	47.24	41.45	40.41	30.31	17.92	1.62	38.87	.17
	FRAGMENT	28.73		SIEVED	11.94ROCK	PERCENT	12.70	

1=FIST
2=CORE
3=LOOSE

THORP SILT LOAM (61,05,C,a)

Location: Piatt Co., T18N R5E, Sec. 16, SW160 SW40 NE10 NW2½, 219' S from the south E-W lane fence, 195' W fron N-S fence line.
Vegetation and land use: Wheat stubble with clover seeding.
Topography: 0 to ½ percent slope, concave; nearly level to gently sloping Wisconsin age glacial topography.
Parent Material: Loess over glacial outwash material.
Described and sampled by: G. W. Hudelson and G. A. Schumaker

Horizon	Description
Ap	0 to 9 inches. Very dark grayish brown (10YR 3/2) with a few splotches of brown (10YR 5/3); silt loam; very weak granular structure; some areas massive; friable; roots common; neutral; abrupt smooth boundary.
A2	9 to 16 inches. Brown (10YR 5/3) with common fine distinct strong brown (7.5YR 5/6) mottles, occasional dark grayish brown (10YR 4/2) coatings, numerous black (5YR 2/1) Fe-Mn concretions, and occasional root channels coated with very dark grayish brown (10YR 3/2); silt loam; weak medium granular; friable; roots common; strongly acid; clear smooth boundary.
B1 (B&A)	16 to 22 inches. Brown (10YR 5/3) with common fine prominent strong brown (7.5YR 5/6) mottles, occasional dark grayish brown (10YR 4/2) coatings, and numerous black (5YR 2/1) Fe-Mn concretions; light silty clay loam; weak to moderate medium subangular blocky structure with occasional areas of granular structure; firm; roots common; very strongly acid; clear smooth boundary.
B21g	22 to 31 inches. Light brownish gray (2.5Y 6/2) with common medium prominent strong brown (7.5YR 5/8) mottles, thin continuous light grayish brown to grayish brown (2.5Y 5.5/2) clay coatings and numerous black (5YR 2/1) Fe-Mn concretions; silty clay loam; weak to moderate medium and coarse subangular blocky structure; firm; roots occasional; strongly acid; gradual smooth boundary.
B22g	31 to 40 inches. Light brownish gray (2.5Y 6/2) with many medium prominent strong brown (7.5YR 5/8) mottles, thin continuous light brownish gray (2.5Y 6/2) clay coatings, and numerous black (5YR 2/1) Fe-Mn concretions; silty clay loam; weak coarse subangular blocky structure; firm; roots occasional; strongly acid; gradual smooth boundary.

Remarks: All Munsell color notations are for fully moist conditions unless otherwise indicated.
Water seeps into pit at 20" depth; some seepage from Ap horizon.
Considerable sand below 50" depth; too wet to determine texture.
Occasional pebbles noted in B horizons.
B1 might be considered a (B&A) horizon. Appeared to have more characteristics of B than A horizon; has same color as A2 and has some granular structure scattered in this horizon.

THORP SILT LOAM (61,05,C,a)

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     WEIGHT  PERCENT  AND  VOLUME  PERCENT  OF  WATER  RETAINED

IDENTIFICATION       T E N S I O N S  (BARS)
                                                                  BD      TP        K
61   5   2   1     .1       .3       .6       3.       15.      G/CC     PCT     IN/HR

    DEPTH                                                             2
      0           32.66    28.19    27.27    24.30    10.09     1.30    50.94
                  42.45    36.64    35.45    31.59    13.11
                  FRAGMENT 31.73                SIEVED 11.19ROCK PERCENT  3.18
                                                                      1
      9           30.10    26.36    24.40    20.49     9.35     1.40    47.17      .80
                  42.14    36.90    34.16    28.68    13.09     1.49    43.77     2.15
                  FRAGMENT 24.35                SIEVED 13.74ROCK PERCENT
                                                                      1
     16           32.50    29.92    25.09    18.33     6.08     1.42    46.42
                  46.15    42.48    35.62    26.02     8.63     1.54    41.89
                  FRAGMENT 27.64                SIEVED  7.79ROCK PERCENT
                                                                      3
     22           28.61    26.21    25.31    20.96    11.61      .34    87.17
                   9.72     8.91     8.60     7.12     3.94
                  FRAGMENT                      SIEVED 11.94ROCK PERCENT 13.50

      1=FIST
      2=CORE
      3=LOOSE
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THORP SILT LOAM (61,05,C,b)

Location: Piatt Co., T18N R5E, Sec. 16, SW160 SW40 SE10 NE2½, 372' N from E-W section line, 90' E from N-S fence line.
Vegetation and land use: Corn
Topography: ½ percent slope, East, slightly concave; gently sloping Wisconsin age glacial topography.
Drainage: Poor
Parent Material: Loess over glacial outwash material.
Described and sampled by: G. W. Hudelson and G. A. Schumaker

Horizon	Description
Ap	0 to 7 inches. Very dark grayish brown (10YR 3/2) silt loam; very weak fine granular structure with many areas that are massive; friable; roots common; slightly acid; abrupt smooth boundary.
A21	7 to 13 inches. Dark grayish brown to grayish brown (10YR 4.5/2) with patchy very dark grayish brown (10YR 3/2) coatings in upper portion and occasional worm casts of very dark brown (10YR 2/2); silt loam; very weak thin platy breaking to moderate fine granular; friable; roots common; very strongly acid; clear smooth boundary.
A22 (A&B)	13 to 18 inches. Grayish brown (10YR 5/2) with few medium faint yellowish brown (10YR 5/4) and common fine distinct yellowish brown (10YR 5/6) mottles, thin continuous grayish brown (10YR 5/2) clay coatings, and a few black (5YR 2/1) Fe-Mn concretions; heavy silt loam; mostly weak to moderate fine and medium granular with occasional upward extensions and isolated areas of weak very fine and fine subangular blocky structure; friable; roots common; very strongly acid; clear smooth boundary.
B21g	18 to 26 inches. Yellowish brown (10YR 5/6) with thin continuous grayish brown (10YR 5/2) clay coatings, a few black (5YR 2/1) Fe-Mn concretions, and occasional large root channels coated with very dark grayish brown (10YR 3/2); silty clay loam; moderate fine subangular blocky structure; firm; roots common; very strongly acid; clear smooth boundary.
B22g	26 to 37 inches. Gray (10YR 6/1) with many medium prominent strong brown (7.5YR 5/8) mottles, thin continuous gray (10YR 6/1) clay coatings (some patches of grayish brown (10YR 5/2) in lower portion), and numerous black (5YR 2/1) Fe-Mn concretions; silty clay loam; medium and coarse subangular blocky structure; firm; roots occasional; strongly acid; gradual smooth boundary.

Remarks: All Munsell color notations are for fully moist conditions unless otherwise indicated.
Sandy loam material at 55" depth (determined by worm auger).
Water seepage into pit at 23" depth.
A22 horizon is possibly an A & B horizon. There appeared to be remnants of B texture as well as structure in this horizon.

MONTICELLO, ILLINOIS

THORP SILT LOAM (61,05,C,b)

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     WEIGHT  PERCENT  AND  VOLUME  PERCENT  OF  WATER  RETAINED

IDENTIFICATION          T E N S I O N S  (BARS)
                                                                BD        TP       K
61   5   2   2     .1       .3       .6       3.       15.     G/CC      PCT     IN/HR

     DEPTH                                                         2
       0          37.61    30.22    29.01    26.36    13.17    1.27     52.08
                  47.76    38.37    36.84    33.47    16.72
                  FRAGMENT                    SIEVED 15.87ROCK PERCENT  4.66
                                                                   1
       7          31.60    28.51    27.27    22.69     8.90*   1.38     47.92      .22
                  43.60    39.34    37.63    31.31    12.28    1.47     44.53      .97
                  FRAGMENT 27.04              SIEVED  3.44ROCK PERCENT 24.51
                                                                   1
      13          33.80    28.18    27.99    22.49     9.67    1.39     47.55      .49
                  46.98    39.17    38.90    31.26    13.44    1.45     45.28      .18
                  FRAGMENT 26.88              SIEVED 11.18ROCK PERCENT 46.86
                                                                   1
      18          33.77    31.34    27.87    26.20    13.93    1.40     47.17      .19
                  47.27    43.87    39.01    36.68    19.50    1.59     40.00      .44
                  FRAGMENT 29.85              SIEVED 12.32ROCK PERCENT 43.86
                                                                   1
      26          33.33    32.70    30.82    28.26    21.07    1.37     48.30      .60
                  45.66    44.79    42.22    38.71    28.86    1.63     38.49      .10
                  FRAGMENT 30.13              SIEVED 21.79ROCK PERCENT   .80
                                                    *RERUN AS 10.74

       1=FIST
       2=CORE
       3=LOOSE
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GRENADA SILT LOAM (62,01,P,a)

Location: Marshall County, SE¼ of SE¼, sec. 17, T3S R2W.
Vegetation and land use: Bermudagrass
Topography: 2 percent slope
Drainage: Moderately well drained
Parent Material: Loess over coastal plain
Described and sampled by: M. C. Tyer, P. J. Barlow, G. P. Lawless

Horizon	Description
Ap	0 to 4 inches. Brown (10YR 5/3) silt loam with many medium faint dark brown (10YR 3/3) mottles; weak fine granular structure; compacted, slightly firm; many fine roots; strongly acid; abrupt smooth boundary.
B21	4 to 15 inches. Yellowish brown (10YR 5/6) heavy silt loam; moderate medium subangular blocky structure; friable; occasional clay film but not enough to be argillic; few fine roots; strongly acid; clear wavy boundary.
B22	15 to 20 inches. Light yellowish brown (10YR 6/4) silt loam with many medium distinct light brownish gray (10YR 6/2) mottles; moderate medium subangular blocky structure; slightly sticky; friable; common fine roots; few medium soft black and brown concretions; strongly acid; clear wavy boundary.
A'2x and B'21xt	20 to 27 inches. Light gray to gray (10YR 6/1) silt loam with many medium distinct brown to dark brown (7.5YR 4/4) and light yellowish brown (10YR 6/4) mottles; moderate medium subangular blocky structure; slightly sticky; slightly compact and brittle; few thin clay films on ped faces; common fine roots; strongly acid; clear irregular boundary.
*B'22tx	27 to 43 inches. Pale brown (10YR 6/3) to brown (10YR 5/3) silty clay loam with many medium distinct brown to dark brown (7.5YR 4/4) mottles; moderate medium angular and subangular blocky structure; firm; compact and brittle; clay films on ped faces; polygonal cracks filled with gray cut the horizon vertically; few fine roots between peds; strongly acid; clear wavy boundary.
*B'23tx	43 to 64 inches. Mottled brown (10YR 5/3), dark yellowish brown (10YR 6/1-7/1) silty clay loam; mottles are many, medium, faint and distinct; moderate medium and coarse angular blocky structure; firm; compact and brittle; clay films on ped faces; common fine soft black and brown concretions; many voids; light gray (10YR 7/1) silt in polygonal cracks which decrease in number with depth; few fine roots in cracks; strongly acid; clear irregular boundary.
*IIB'24tx	64 to 74 inches. Mottled brown (10YR 5/3), light gray (10YR 6/1-7/1) and dark yellowish brown (10YR 4/4) loam; weak medium and coarse angular blocky structure; firm; compact and brittle; clay bridging of sand grains and films on ped faces; common medium black stains in voids; few polygonal cracks with light gray (10YR 7/1) silt; strongly acid.

*Indicates least permeable horizons.

GRENADA SILT LOAM (62,01,P,a)

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     WEIGHT  PERCENT  AND  VOLUME  PERCENT  OF  WATER  RETAINED

IDENTIFICATION        TENSIONS (BARS)
                                                                BD        TP        K
62   1   1   1     .1        .3        .6        3.        15.       G/CC      PCT      IN/HR

    DEPTH                                                            1
     0             35.07     31.55     28.37     17.55      9.34     1.32      50.19      .51
                   46.29     41.64     38.10     23.16     12.32     1.33      49.81      .49
                   FRAGMENT  30.48                SIEVED  8.42ROCK PERCENT   1.30
                                                                     1
     4             28.52     27.11     26.29     22.02     14.49     1.29      51.32      .90
                   36.79     34.97     33.91     28.40     18.69     1.32      50.19     2.23
                   FRAGMENT  26.83                SIEVED  9.99ROCK PERCENT   3.50
                                                        (12.35)      1
    15             26.83     26.13     23.83     19.07      7.69     1.35      49.06      .59
                   36.22     35.27     32.17     25.74     10.38     1.39      47.55      .87
                   FRAGMENT  25.71                SIEVED  9.59ROCK PERCENT  27.07
                                                                     1
    20             27.00     25.59     23.93     19.35     14.65     1.47      44.53      .71
                   39.69     37.61     35.17     28.44     21.53     1.57      40.75      .15
                   FRAGMENT  24.52                SIEVED 15.00ROCK PERCENT  19.39
                                                                     1
    27             29.76     26.47     24.08     20.10     15.90     1.52      42.64      0
                   45.23     40.23     36.60     30.55     24.16     1.56      41.13      .02
                   FRAGMENT  24.13                SIEVED 11.77ROCK PERCENT
                                                        (15.58)      1
    43             25.42     20.96     18.50     14.71     10.49     1.61      39.25      .25
                   40.92     33.74     29.78     23.68     16.88     1.68      36.60      .02
                   FRAGMENT  19.81                SIEVED 10.43ROCK PERCENT  12.55
                                                                     3
    64             21.73     18.72     16.26     14.65      9.73     1.50      43.40
                   32.59     28.08     24.39     21.97     14.59
                   FRAGMENT                       SIEVED  8.86ROCK PERCENT  21.90

     1=FIST
     2=CORE
     3=LOOSE
```

OXFORD, MISSISSIPPI

GRENADA SILT LOAM (62,01,P,b)

Location: Marshall County, SE¼ of SE¼, sec. 17, T3S R2W.
Vegetation and land use: Bermudagrass
Topography: 2 percent slope
Drainage: Moderately well drained
Parent Material: Loess over coastal plain.
Described and sampled by: M. C. Tyer, P. J. Barlow, G. P. Lawless

Horizon	Description
Ap	0 to 5 inches. Mottled dark brown (10YR 3/3) and brown (10YR5/3) silt loam; weak fine granular and subangular blocky structure; compacted, slightly firm; many fine roots; medium acid; clear wavy boundary.
B & A	5 to 8 inches. Dark yellowish brown (10YR 4/4) silt loam with many medium faint mottles of dark brown (10YR 3/3); weak fine granular and subangular blocky structure; friable; common fine roots; strongly acid; clear wavy boundary.
B21	8 to 18 inches. Yellowish brown (10YR 5/4) silt loam with few fine faint mottles of dark yellowish brown (10YR 4/4); moderate medium subangular blocky structure; friable; few fine roots; occasional clay films but not enough to be argillic; strongly acid; clear wavy boundary.
B22	18 to 23 inches. Brown (10YR 5/3) silt loam; common medium faint mottles of dark yellowish brown (10YR 4/4); moderate medium subangular blocky structure; friable; few fine roots; common distinct black stains; strongly acid; clear wavy boundary.
A'2x and B'21tx	23 to 33 inches. Mottled light gray (10YR 6/1), light brownish gray (10YR 6/2), brown (10YR 5/3) and dark yellowish brown (10YR 4/4) silt loam; weak to moderate fine and medium angular and subangular blocky structure; friable to firm; slightly compact and brittle; few fine roots; light brownish gray (10YR 6/2) silt coating on ped faces and in cracks; strongly acid; clear irregular boundary.
*B'22tx	33 to 43 inches. Brown to dark brown (7.5YR 4/4) silty clay loam; with common distinct mottles and coats of light gray (10YR 6/1) and light brownish gray (10YR 6/2); in cracks and on ped faces; moderate medium subangular blocky structure; firm; compact and brittle; clay films on ped faces; few fine distinct black stains; common polygonal cracks filled with light gray silt extending downward; strongly acid; clear wavy boundary.
*B'23tx	43 to 59 inches. Brown to dark brown (7.5YR 4/4) silty clay loam with common light gray (10YR 6/1) and light brownish gray (10YR 6/2) mottles and silt coatings on ped faces and in polygonal cracks; moderate medium to coarse subangular blocky structure; firm; compact and brittle; common fine distinct black stains; clay films on ped faces; common one-inch polygonal cracks filled with light gray (10YR 7/1) silt; strongly acid; clear wavy boundary.
*IIB'24t	59 to 80 inches. Reddish brown (5YR 4/4) light silt loam with common light gray (10YR 6/1) and light brownish gray (10YR 6/2) silt in cracks and on ped faces; weak coarse angular blocky structure; firm; clay films and bridging on ped faces; common fine distinct black stains; common one-inch polygonal cracks filled with gray extending downward; strongly acid.

*Indicates least permeable horizons.

OXFORD, MISSISSIPPI

GRENADA SILT LOAM (62,01,P,b)

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     WEIGHT  PERCENT  AND  VOLUME  PERCENT  OF  WATER  RETAINED

IDENTIFICATION        T E N S I O N S  (BARS)
                                                                     BD        TP       K
62   1   1   2      .1        .3        .6        3.        15.     G/CC      PCT     IN/HR

     DEPTH                                                            1
      0            34.61     30.39     26.17     22.09      8.98     1.38     47.92     .09
                   47.76     41.93     36.11     30.48     12.39     1.38     47.92     .14
                   FRAGMENT  29.24               SIEVED   9.71ROCK PERCENT   4.54
                                                                      1
      5            29.01     26.15     25.61     22.96     13.97     1.30     50.94     .24
                   37.71     33.99     33.29     29.84     18.16     1.34     49.43     .46
                   FRAGMENT  25.65               SIEVED   9.82ROCK PERCENT
                                                       (13.22)        1
      8            31.21     28.16     27.77     24.46     15.97     1.36     48.68     .09
                   42.44     38.29     37.76     33.26     21.71     1.41     46.79     .14
                   FRAGMENT  27.83               SIEVED 15.23ROCK PERCENT   3.87
                                                                      1
     18            31.73     30.09     27.91     24.25     14.78     1.36     48.68     .27
                   43.15     40.92     37.95     32.98     20.10     1.41     46.79     .73
                   FRAGMENT  29.39               SIEVED 10.15ROCK PERCENT
                                                       (13.30)        1
     23            29.43     27.16     25.36     20.54     11.83     1.31     50.57     .26
                   38.55     35.57     33.22     26.90     15.49     1.35     49.06     .72
                   FRAGMENT  25.02               SIEVED   8.53ROCK PERCENT
                                                                      1
     33            28.36     26.03     24.81     22.14     15.43     1.51     43.02     .12
                   42.82     39.30     37.46     33.43     23.29     1.54     41.89      0
                   FRAGMENT  24.09               SIEVED 10.82ROCK PERCENT
                                                       (12.38)        1
     43            27.61     23.67     23.37     19.04     14.02     1.58     40.38     .30
                   43.62     37.39     36.92     30.08     22.15     1.59     40.00      0
                   FRAGMENT  21.68               SIEVED   9.35ROCK PERCENT
                                                       (10.85)        3
     59            21.72     21.32     19.92     18.61     12.41     1.53     42.26
                   33.23     32.61     30.47     28.47     18.98
                   FRAGMENT                      SIEVED   7.50ROCK PERCENT
                                                       ( 8.84)

     1=FIST
     2=CORE
     3=LOOSE
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GRENADA SILT LOAM (62,01,C,a)

Location: Marshall County, NE¼ of SE¼, sec. 17, T3S R2W.
Vegetation and land use: Cotton
Topography: 4 percent slope
Drainage: Moderately well drained
Parent Material: Loess over coastal plain
Described and sampled by: M. C. Tyer, P. J. Barlow, G. P. Lawless

Horizon	Description
Ap	0 to 5 inches. Brown (10YR 4/3) silt loam with common medium faint mottles of yellowish brown (10YR 5/4); weak fine granular structure; friable; few fine and medium roots; few fine distinct black and brown stains and concretions; slightly acid; abrupt smooth boundary.
B21	5 to 12 inches. Yellowish brown (10YR 5/4) heavy silt loam with moderate medium subangular blocky structure; friable; few fine roots; many fine and medium distinct black and brown concretions and stains; strongly acid; clear wavy boundary.
B22	12 to 18 inches. Pale brown (10YR 6/3) heavy silt loam with common medium faint mottles of yellowish brown (10YR 5/4) and dark yellowish brown (10YR 4/4); moderate medium subangular blocky structure; friable; many fine and medium black and brown concretions and stains; strongly acid; clear wavy boundary.
A'2x and B'21xt	18 to 26 inches. Light gray (10YR 7/2) to gray (10YR 6/1) silt loam with common fine and medium distinct mottles of dark yellowish brown (10YR 4/4); weak to moderate fine and medium angular and subangular blocky structure; friable; patchy clay films on ped faces; many fine and medium distinct black and brown concretions and stains; strongly acid; clear wavy boundary.
*B'22xt	26 to 43 inches. Yellowish brown (10YR 5/6) silty clay loam with common medium faint mottles of dark yellowish brown (10YR 4/4); moderate medium subangular blocky structure; firm; compact and brittle; clay films on ped faces; common fine and medium black and brown stains and concretions; polygonal cracks filled with gray (10YR 6/1) extending downward; strongly acid; clear wavy boundary.
*B'23xt	43 to 64 inches. Brown to dark brown (7.5YR 4/4) to reddish brown (5YR 4/4) silty clay loam; moderate medium angular blocky structure; firm; compact and brittle; patchy clay films on ped faces; light gray (10YR 7/1) to gray (10YR 6/1) silt in cracks and on ped faces; common fine and medium black and brown concretions and stains; strongly acid; clear wavy boundary.
*IIB'24t	64 to 80 inches. Reddish brown (5YR 4/4-4/3) clay loam with moderate medium angular blocky structure; firm; clay films on ped faces; polygonal cracks filled with light gray (10YR 7/1) silt; common fine and medium black and brown stains and concretions; strongly acid.

*Indicates least permeable horizons.

GRENADA SILT LOAM (62,01,C,a)

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      WEIGHT  PERCENT  AND  VOLUME  PERCENT  OF  WATER  RETAINED

IDENTIFICATION       T E N S I O N S  (BARS)
                                                                    BD      TP       K
62   1   2   1      .1       .3       .6       3.       15.       G/CC     PCT     IN/HR

     DEPTH                                                            1
      0            26.33    24.13    18.64    16.13     8.44     1.26    52.45     .14
                   33.17    30.40    23.48    20.32    10.63     1.30    50.94     .51
                   FRAGMENT 22.94                SIEVED  7.72ROCK PERCENT  5.93
                                                                      1
      5            29.71    26.77    24.39    22.18     9.69     1.35    49.06    1.04
                   40.10    36.13    32.92    29.94    13.08     1.44    45.66    1.21
                   FRAGMENT 26.06                SIEVED 12.71ROCK PERCENT  7.05
                                                                      1
     12            31.88    27.75    25.35    21.42    14.68     1.21    54.34     .91
                   38.57    33.57    30.67    25.91    17.76     1.28    51.70     .66
                   FRAGMENT 27.23                SIEVED 14.10ROCK PERCENT 14.99
                                                                      1
     18            28.86    26.58    22.63    18.21    12.01     1.48    44.15     .99
                   42.71    39.33    33.49    26.95    17.77     1.48    44.15     .06
                   FRAGMENT 25.14                SIEVED 13.09ROCK PERCENT 12.95
                                                                      1
     26            30.43    26.61    25.50    21.61     9.07     1.50    43.40     .18
                   45.64    39.91    38.25    32.41    13.60     1.50    43.40     .14
                   FRAGMENT 25.30                SIEVED 13.11ROCK PERCENT 12.22

      1=FIST
      2=CORE
      3=LOOSE
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GRENADA SILT LOAM (62,01,C,b)

Location: Marshall County, NE¼ of SW¼, sec. 17, T3S R2W.
Vegetation and land use: Cotton
Topography: 2 percent slope
Drainage: Moderately well drained
Parent Material: Loess over coastal plain
Described and sampled by: M. C. Tyer, P. J. Barlow, G. P. Lawless

Horizon	Description
Ap	0 to 4 inches. Dark yellowish brown (10YR 4/4) silt loam with common medium faint mottles of yellowish brown (10YR 5/4); weak fine granular structure; friable; common fine roots; few fine distinct black and brown stains; slightly acid; abrupt smooth boundary.
B21	4 to 10 inches. Yellowish brown (10YR 5/4) heavy silt loam with few fine faint mottles of pale brown (10YR 6/3); moderate medium subangular blocky structure; friable; few fine roots; common fine to medium black and brown stains and concretions; slightly acid; clear wavy boundary.
B22	10 to 15 inches. Brown (10YR 5/3) heavy silt loam with common medium faint mottles of pale brown (10YR 6/3); moderate medium subangular blocky structure; friable; few fine roots; common fine and medium distinct black and brown stains and concretions; very strongly acid; clear wavy boundary.
A'2x and B'21xt	15 to 21 inches. Mottled gray (10YR 6/1) to light gray (10YR 7/1) and light brownish gray (10YR 6/2) silt loam with many fine and medium distinct mottles of dark yellowish brown (10YR 4/4); weak to moderate fine and medium subangular blocky structure; friable to firm; slightly compact and brittle; patchy clay films on peds; common fine and medium distinct black and brown concretions and stains; common fine voids; strongly acid; clear irregular boundary.
*B'22xt	21 to 40 inches. Brown to dark brown (7.5YR 4/4) silty clay loam with common mottles of light gray to gray (10YR 6/1) and light brownish gray (10YR 6/2) silt coatings on ped faces and in cracks; moderate medium subangular blocky structure; firm; compact and brittle; clay films on ped faces; common fine and medium distinct black and brown stains and concretions; strongly acid; polygonal cracks filled with gray (10YR 6/1-7/1) extending downward; clear wavy boundary.
*B'23xt	40 to 60 inches. Reddish brown (5YR 4/4) silty clay loam with common mottles and coatings of distinct light gray to gray (10YR 7/1-6/1); moderate medium angular blocky structure; firm; compact and brittle clay films on ped faces; strongly acid; clear wavy boundary.
*IIB'24t	60 to 74 inches. Dark red (2.5YR 3/6) clay loam with common gray to light gray (10YR 7/1) and light brownish gray (10YR 6/2) silt coatings on ped faces and in cracks; moderate medium and coarse angular blocky structure; firm; brittle; common black and brown concretions and stains; clay films on ped faces; strongly acid.

*Indicates least permeable horizons.

GRENADA SILT LOAM (62,01,C,b)

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     WEIGHT  PERCENT  AND  VOLUME  PERCENT  OF  WATER  RETAINED

IDENTIFICATION         T E N S I O N S  (BARS)
                                                                 BD         TP         K
62   1    2    2     .1         .3         .6         3.        15.        G/CC       PCT       IN/HR

      DEPTH                                                                   1
       0            27.65      22.95      18.18      14.42       9.52      1.52      42.64      .38
                    42.02      34.88      27.63      21.91      14.47      1.58      40.38      .35
                    FRAGMENT   21.40                  SIEVED    9.99ROCK  PERCENT    8.15
                                                                              1
       4            27.36      24.32      22.74      21.05      14.53      1.46      44.91      .27
                    39.94      35.50      33.20      30.73      21.21      1.54      41.89      .33
                    FRAGMENT   23.77                  SIEVED   10.16ROCK  PERCENT
                                                              (12.73)         1
      10            29.85      26.69      25.92      22.82       8.76*     1.38      47.92      .93
                    41.19      36.83      35.76      31.49      12.08      1.45      45.28     1.09
                    FRAGMENT   28.33                  SIEVED   13.43ROCK  PERCENT   11.58
                                                                              1
      15            29.31      25.75      22.74      18.82      12.53      1.48      44.15     2.57
                    43.37      38.11      33.65      27.85      18.54      1.54      41.89      .47
                    FRAGMENT   25.89                  SIEVED    9.81ROCK  PERCENT   24.48
                                                                              1
      21            28.69      24.63      20.79      18.90      14.34      1.49      43.77      .13
                    42.74      36.69      30.97      28.16      21.36      1.57      40.75      .21
                    FRAGMENT   23.77                  SIEVED   11.57ROCK  PERCENT   30.91
                                                              *RERUN AS 15.32

         1=FIST
         2=CORE
         3=LOOSE
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LORING SILT LOAM (62,02,P,a)

Location: Marshall County, SW¼ of NE¼, Sec. 20, T3S R2W.
Vegetation and land use: Lespedeza
Topography: 5 percent slope
Drainage: Moderately well drained
Parent Material: Loess over coastal plain
Described and sampled by: M. C. Tyer, P. J. Barlow, G. P. Lawless

Horizon	Description
Ap	0 to 3 inches. Dark grayish brown (10YR 4/2) silt loam with many fine medium and coarse distinct dark yellowish brown (10YR 4/4) mottles; weak fine granular structure; very friable; many fine roots; strongly acid; abrupt smooth boundary.
B21t	3 to 12 inches. Dark brown (7.5YR 4/4) silty clay loam; moderate medium subangular blocky structure; friable; many fine roots; patchy clay films on ped faces; strongly acid; clear wavy boundary.
B22t	12 to 21 inches. Dark brown (7.5YR 4/4) silty clay loam; moderate fine and medium subangular and angular blocky structure; friable; few fine roots; common fine and medium distinct black stains and concretions; patchy clay films on ped faces; strongly acid; clear wavy boundary.
B23tx	21 to 27 inches. Mottled dark brown (7.5YR 4/4) and light brownish gray (2.5Y 6/2) silt loam; weak coarse prismatic structure that breaks into moderate fine and medium angular and subangular blocky structure; slightly firm; slightly compact and brittle; patchy clay films on ped faces; common fine and medium distinct black stains; medium acid; clear irregular boundary.
*B24tx	27 to 35 inches. Mottled dark brown (7.5YR 4/4), gray (2.5Y 6/0) and light yellowish brown (10YR 6/4) silt loam; moderate coarse prismatic structure that breaks into moderate fine and medium angular and subangular blocky structure; slightly firm; compact and brittle; patchy clay films on ped faces; common fine and medium distinct black stains; medium acid; clear irregular boundary.
*B25tx	35 to 48 inches. Dark brown (7.5YR 4/4) silt loam with many distinct light gray (10YR 6/1) silt coatings on ped faces and in cracks; weak coarse prismatic structure that breaks into moderate medium angular blocky structure; slightly firm; compact and brittle; patchy clay films on ped faces; medium acid; clear wavy boundary.
B31tx	48 to 62 inches. Dark brown (7.5YR 4/4) silt loam with common distinct light gray (10YR 6/1) silt coatings on ped faces and in cracks; weak coarse prismatic structure that breaks into weak coarse angular blocky structure; firm; compact and brittle; common voids; patchy clay films; medium acid; clear smooth boundary.
IIB32tx	62 to 71 inches. Dark brown (7.5YR 4/4) loam with weak coarse angular blocky structure; friable; common medium distinct black stains; medium acid.

*Indicates least permeable horizons.

LORING SILT LOAM (62,02,P,a)

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       WEIGHT  PERCENT  AND  VOLUME  PERCENT  OF  WATER  RETAINED

IDENTIFICATION          TENSIONS  (BARS)
                                                                 BD      TP       K
62  2  1  1       .1       .3       .6       3.       15.       G/CC    PCT     IN/HR

     DEPTH                                                           1
       0          31.64    23.43    18.75    13.87     9.82     1.54    41.89      .11
                  48.72    36.08    28.87    21.35    15.12     1.60    39.62       0
                  FRAGMENT 23.81              SIEVED  7.83ROCK PERCENT
                                                                     1
       3          30.56    27.87    26.31    23.07    17.20     1.39    47.55      .19
                  42.47    38.73    36.57    32.06    23.90     1.50    43.40      .17
                  FRAGMENT 26.11              SIEVED 11.37ROCK PERCENT  2.20
                                                    (15.70)          1
      12          30.11    27.74    26.84    21.11    15.63     1.41    46.79      .50
                  42.45    39.11    37.84    29.76    22.03     1.48    44.15      .43
                  FRAGMENT 26.09              SIEVED 10.32ROCK PERCENT
                                                    (11.39)          1
      21          29.36    27.41    24.71    20.67    14.52     1.45    45.28      .70
                  42.57    39.74    35.82    29.97    21.05     1.54    41.89      .40
                  FRAGMENT 26.29              SIEVED 15.26ROCK PERCENT
                                                    (10.64)          1
      27          28.24    25.00    23.28    19.55    14.10     1.55    41.51      .08
                  43.77    38.75    36.08    30.30    21.85     1.58    40.38      .04
                  FRAGMENT 22.95              SIEVED  9.22ROCK PERCENT
                                                    (10.67)          1
      35          24.42    22.41    20.42    17.93    13.43     1.65    37.74      .06
                  40.29    36.97    33.69    29.58    22.15     1.69    36.23      .08
                  FRAGMENT 21.44              SIEVED  8.56ROCK PERCENT
                                                    (10.58)          1
      48          23.52    20.61    18.35    15.42    12.57     1.66    37.36      .02
                  39.04    34.21    30.46    25.59    20.86     1.69    36.23       0
                  FRAGMENT 18.08              SIEVED  8.47ROCK PERCENT  1.08
                                                    (16.60)          1
      62          21.11    17.81    12.23    11.99     9.21     1.77    33.21      .97
                  37.36    31.52    21.64    21.22    16.30     1.81    31.70       0
                  FRAGMENT 15.60              SIEVED  6.06ROCK PERCENT


       1=FIST
       2=CORE
       3=LOOSE
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OXFORD, MISSISSIPPI

LORING SILT LOAM (62,02,P,b)

Location: Marshall County, SW¼ of NE¼, Sec. 20, T3S R2W.
Vegetation and land use: Bermudagrass
Topography: 2 percent slope
Drainage: Moderately well drained
Parent Material: Loess over coastal plain.
Described and sampled by: M. C. Tyer, P. J. Barlow, G. P. Lawless

Horizon	Description
Ap	0 to 5 inches. Brown to dark brown (10YR 4/3) silt loam with common medium distinct mottles of grayish brown (10YR 5/2); weak fine subangular blocky and granular structure; friable; many fine roots; slightly acid; abrupt smooth boundary.
B21t	5 to 18 inches. Dark brown (7.5YR 4/4) silty clay loam; moderate medium subangular blocky structure; friable; common fine roots; patchy clay films on ped faces; slightly acid; clear wavy boundary.
B22t	18 to 27 inches. Dark brown (7.5YR 4/4) heavy silt loam with common medium faint mottles of strong brown (7.5YR 5/6); moderate medium subangular and angular blocky structure; friable; few fine roots; patchy clay films on ped faces; common medium distinct black stains and concretions; medium acid; clear wavy boundary.
B23tx	27 to 42 inches. Mottled dark brown (7.5YR 4/4), strong brown (7.5YR 5/6) and light gray (10YR 7/1) to gray (10YR 6/1) silt loam; weak coarse prismatic structure that breaks into moderate medium subangular blocky structure; slightly firm; compact and brittle; patchy clay films on ped faces; common medium distinct black stains and concretions; common voids; medium acid; clear wavy boundary.
*B24tx	42 to 55 inches. Yellowish red (5YR 4/6) silt loam with common medium distinct mottles of light yellowish brown (10YR 6/4) weak coarse prismatic structure that breaks into weak medium angular blocky structure; slightly firm; slightly compact and brittle; patchy clay films on ped faces; common voids; few fine distinct black stains and concretions; medium acid; clear wavy boundary.
*IIB25tx	55 to 80 inches. Yellowish red (5YR 5/6) silt loam with common medium distinct mottles of light yellowish brown (10YR 6/4); weak coarse prismatic structure that breaks into moderate medium angular blocky structure; firm; patchy clay films on ped faces; common medium distinct black stains and concretions; common voids; medium acid.

*Indicates least permeable horizons.

OXFORD, MISSISSIPPI

LORING SILT LOAM (62,02,P,b)

WEIGHT PERCENT AND VOLUME PERCENT OF WATER RETAINED

IDENTIFICATION TENSIONS (BARS)

62 2 1 2	.1	.3	.6	3.	15.	BD G/CC	TP PCT	K IN/HR
DEPTH						1		
0	29.56	25.19	18.84	11.32	6.58	1.50	43.40	.10
	44.34	37.78	28.26	16.98	9.87	1.55	41.51	.46
	FRAGMENT	24.83		SIEVED	5.69ROCK	PERCENT	4.34	
						1		
5	28.06	26.41	24.04	20.62	14.82	1.27	52.08	.96
	35.63	33.54	30.53	26.18	18.82	1.35	49.06	.56
	FRAGMENT	25.02		SIEVED	13.76ROCK	PERCENT	23.06	
						1		
18	32.91	29.74	28.72	23.75	15.04	1.17	55.85	1.45
	38.50	34.79	33.60	27.78	17.59	1.24	53.21	.23
	FRAGMENT	28.09		SIEVED	8.28ROCK	PERCENT		
					(14.61)	1		
27	27.55	26.14	23.66	17.35	12.31	1.42	46.42	.83
	39.12	37.11	33.59	24.63	17.48	1.46	44.91	.56
	FRAGMENT	24.46		SIEVED	11.05ROCK	PERCENT	5.42	
						1		
42	25.14	23.01	21.42	17.22	13.01	1.57	40.75	.37
	39.46	36.12	33.62	27.03	20.42	1.62	38.87	.23
	FRAGMENT	21.89		SIEVED	11.06ROCK	PERCENT	3.91	
						1		
55	22.96	21.26	19.19	15.70	6.95	1.65	37.74	.12
	37.88	35.07	31.66	25.90	11.46	1.70	35.85	.17
	FRAGMENT	19.81		SIEVED	9.96ROCK	PERCENT	31.25	

1=FIST
2=CORE
3=LOOSE

LORING SILT LOAM (62,02,C,a)

Location: Marshall County, SE¼ of NE¼, sec. 20, T3S R2W.
Vegetation and land use: Corn
Topography: 3 percent slope
Drainage: Moderately well drained
Parent Material: Loess over coastal plain.
Described and sampled by: M. C. Tyer, P. J. Barlow, G. P. Lawless

Horizon	Description
Ap	0 to 5 inches. Dark yellowish brown (10YR 4/4) silt loam with common medium faint mottles of dark brown (7.5YR 4/4); weak fine granular structure; friable; many fine roots; strongly acid; abrupt smooth boundary.
B21t	5 to 17 inches. Dark brown (7.5YR 4/4) heavy silt loam; moderate medium subangular blocky structure; friable; few fine roots; patchy clay films; strongly acid; clear wavy boundary.
B22t	17 to 26 inches. Dark brown (7.5YR 4/4) heavy silt loam with many distinct pale brown (10YR 6/3) silt coatings on ped faces; moderate medium subangular blocky structure; friable; few fine roots; patchy clay films on ped faces; few fine and medium distinct black stains; strongly acid; clear wavy boundary.
B23tx	26 to 38 inches. Mottled dark brown (7.5YR 4/4) and pale brown (10YR 6/3) silt loam; weak coarse prismatic structure that breaks into moderate medium angular and subangular structure; slightly firm; compact and brittle; patchy clay films; few medium distinct black stains; polygonal cracks filled with gray (10YR 6/1) silt extending into next horizon; strongly acid; clear irregular boundary.
*B24tx	38 to 53 inches. Dark brown (7.5YR 4/4) silt loam with few medium distinct mottles of yellowish brown (10YR 5/8); light gray (10YR 7/1) silt coats in cracks and on ped faces; weak coarse prismatic structure that breaks into moderate medium to coarse angular and subangular blocky structure; slightly firm; compact and brittle; patchy clay films; polygonal cracks filled with gray extending downward; few medium distinct black stains; strongly acid; clear wavy boundary.
*B25tx	53 to 67 inches. Yellowish red (5YR 4/6) silt loam with common light brownish gray (10YR 6/2) and pale brown (10YR 6/3) silt coats on ped faces; moderate medium angular blocky structure; slightly compact and brittle; slightly firm; patchy clay films on ped faces; medium acid; clear wavy boundary.
*IIB26t	67 to 80 inches. Red (2.5YR 4/6) sandy clay loam; moderate medium and coarse angular blocky structure; firm; patchy clay films on ped faces; polygonal cracks filled with light gray (10YR 7/1) silt; medium acid.

*Indicates least permeable horizons.

LORING SILT LOAM (62,02,C,a)

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      WEIGHT  PERCENT  AND  VOLUME  PERCENT  OF  WATER  RETAINED

IDENTIFICATION        T E N S I O N S  (BARS)
                                                                      BD        TP        K
62   2   2   1     .1        .3        .6        3.        15.       G/CC      PCT      IN/HR

     DEPTH                                                                1
       0           29.82     25.21     21.95     14.20      7.09     1.55     41.51      .32
                   46.22     39.07     34.02     22.01     10.98     1.58     40.38      .05
                   FRAGMENT 20.69                SIEVED   5.82ROCK PERCENT
                                                                          1
       5           29.49     27.46     25.17     21.71     15.49     1.33     49.81     1.14
                   39.22     36.52     33.47     28.87     20.60     1.41     46.79      .59
                   FRAGMENT 25.19                SIEVED 10.28ROCK PERCENT 30.53
                                                        (15.00)           1
      17           31.67     29.53     27.53     23.38     15.88     1.34     49.43     1.87
                   42.43     39.57     36.89     31.32     21.27     1.43     46.04     1.38
                   FRAGMENT 29.35                SIEVED 10.40ROCK PERCENT
                                                        (14.86)

       1=FIST
       2=CORE
       3=LOOSE
```

LORING SILT LOAM (62,02,C,b)

Location: Marshall County
Vegetation and land use: Corn
Topography: 2 percent slope
Drainage: Moderately well drained
Parent Material: Loess over coastal plain.
Described and sampled by: M. C. Tyer, P. J. Barlow, G. P. Lawless

Horizon	Description
Ap	0 to 4 inches. Dark yellowish brown (10YR 4/4) silt loam; weak fine granular structure; friable; many fine roots; slightly acid; abrupt smooth boundary.
B21t	4 to 13 inches. Dark brown (7.5YR 4/4) silty clay loam; moderate medium subangular blocky structure; friable; common fine roots; patchy clay films on ped faces; common fine and medium distinct black concretions and stains; medium acid; clear wavy boundary.
B22t	13 to 21 inches. Dark brown (7.5YR 4/4) silty clay loam with common medium distinct mottles of yellowish brown (10YR 5/6); moderate medium subangular blocky structure; friable; few fine roots; common medium to coarse distinct black stains and concretions; patchy clay films on ped faces; medium acid; clear wavy boundary.
B23tx	21 to 29 inches. Mottled yellowish brown (10YR 5/6), dark brown (7.5YR 4/4) and light gray (10YR 7/1-7/2) heavy silt loam; weak coarse prismatic structure that breaks into moderate medium subangular and angular blocky structure; slightly firm; compact and brittle; patchy clay films on ped faces; medium acid; clear irregular boundary.
B24tx	29 to 46 inches. Dark brown (7.5YR 4/4) silt loam; weak coarse prismatic structure that breaks into medium to coarse angular blocky structure; firm, compact and brittle; patchy clay films on ped faces; polygonal cracks filled with light gray (10YR 7/1) silt extending downward; common medium distinct black stains and concretions; few voids; medium acid; clear wavy boundary.
*B25tx	46 to 62 inches. Dark reddish brown (5YR 3/4) silt loam; weak coarse prismatic structure that breaks into weak medium to coarse angular blocky structure; firm; compact and brittle; patchy clay films on ped faces; few medium distinct black stains; voids; polygonal cracks filled with gray (10YR 6/1) silt; medium acid; clear wavy boundary.
*IIB3tx	62 to 72 inches. Yellowish red (5YR 4/6) loam; weak coarse prismatic structure that breaks into weak medium to coarse angular blocky structure; slightly firm; clay bridging of sand grains; common medium distinct black stains; common voids; polygonal cracks filled light gray (10YR 6/1) silt; medium acid.

*Indicates least permeable horizons.

LORING SILT LOAM (62,02,C,b)

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      WEIGHT  PERCENT  AND  VOLUME  PERCENT  OF  WATER  RETAINED

IDENTIFICATION        T E N S I O N S  (BARS)
                                                                       BD       TP       K
62    2    2    2     .1       .3       .6       3.       15.        G/CC     PCT      IN/HR

    DEPTH                                                               1
     0               25.17    24.80    22.95    16.27    11.00    1.56     41.13      .04
                     39.26    38.68    35.80    25.38    17.16    1.63     38.49      .22
                     FRAGMENT 21.51             SIEVED   8.30ROCK PERCENT
                                                                        1
     4               33.19    30.61    28.63    24.41    17.74    1.36     48.68     1.02
                     45.13    41.62    38.93    33.19    24.12    1.45     45.28     3.17
                     FRAGMENT 28.62             SIEVED  21.76ROCK PERCENT  6.47
                                                                        1
    13               31.88    27.88    26.29    22.30    15.26    1.23     53.58      .36
                     39.21    34.29    32.33    27.42    18.76    1.32     50.19      .69
                     FRAGMENT 31.58             SIEVED   9.76ROCK PERCENT
                                                       (16.97)          1
    21               29.38    27.54    25.75    20.64    14.28    1.45     45.28      .06
                     42.60    39.93    37.33    29.92    20.70    1.49     43.77      .02
                     FRAGMENT 26.08             SIEVED  20.51ROCK PERCENT 25.16

      1=FIST
      2=CORE
      3=LOOSE
```

PROVIDENCE SILT LOAM (62,03,P,a)

Location: Marshall County, SE¼ of NE¼, sec. 20, T3S R2W.
Vegetation and land use: Lespedeza
Topography: 7 percent slope
Drainage: Moderately well drained
Parent Material: Loess over coastal plain.
Described and sampled by: M. C. Tyer, P. J. Barlow, G. P. Lawless

Horizon	Description
Ap	0 to 5 inches. Brown to dark brown (10YR 4/3) silt loam; weak fine granular structure; friable; common fine roots; medium acid; abrupt smooth boundary.
B21t	5 to 17 inches. Brown to dark brown (7.5YR 4/4) silty clay loam; moderate medium subangular blocky structure; friable; few fine roots; patchy clay films on ped faces; strongly acid; clear wavy boundary.
B22tx	17 to 27 inches. Mottled brown to dark brown (7.5YR 4/4), gray to light gray (10YR 6/1) and brownish yellow (10YR 6/6) heavy silt loam; weak fine and medium angular blocky structure; slightly firm; slightly compact and brittle; common fine and medium distinct black stains and concretions; patchy clay films and clay bridging of sand grains; strongly acid; clear wavy boundary.
*IIB23tx	27 to 37 inches. Brown to dark brown (7.5YR 4/4) loam with few distinct mottles of brownish yellow (10YR 6/6); weak medium and coarse angular blocky structure; firm; compact and brittle; common light brownish gray silt coatings on ped faces and in cracks; common medium distinct black stains; patchy clay films on ped faces; strongly acid; clear irregular boundary.
*IIB3tx	37 to 48 inches. Light yellowish brown (10YR 6/4) sandy loam with common medium faint mottles of very pale brown (10YR 7/3); weak medium and coarse angular blocky structure; firm; compact and brittle; common medium distinct black stains on ped faces; clay bridging of sand grains; strongly acid; clear wavy boundary.
IIC	48 to 72 inches plus. Stratified red (2.5YR 4/6) to dark red (2.5YR 3/6) sandy clay loam and yellowish brown (10YR 5/6) loamy sand; weak medium to coarse angular blocky structure to structureless; loose to friable; clay bridging of sand grains on sandy clay loam; strongly acid.

*Indicates least permeable horizons.

OXFORD, MISSISSIPPI

PROVIDENCE SILT LOAM (62,03,P,a)

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     WEIGHT  PERCENT  AND  VOLUME  PERCENT  OF  WATER  RETAINED

IDENTIFICATION        T E N S I O N S  (BARS)
                                                                  BD       TP        K
62   3   1   1      .1       .3       .6       3.       15.       G/CC     PCT      IN/HR

    DEPTH                                                          1
     0             27.33    24.77    21.12    14.85     7.77      1.50    43.40       0
                   40.99    37.15    31.68    22.27    11.65      1.56    41.13     .02
                   FRAGMENT 22.99              SIEVED  6.44ROCK PERCENT
                                                                   1
     5             29.34    27.65    26.06    22.72    17.36      1.48    44.15     .21
                   43.42    40.92    38.56    33.62    25.69      1.53    42.26    1.07
                   FRAGMENT 26.40              SIEVED 12.69ROCK PERCENT
                                                      (15.98)      1
    17             21.63    19.79    18.31    14.00    11.25      1.66    37.36     .14
                   35.90    32.85    30.39    23.24    18.67      1.79    32.45     .43
                   FRAGMENT 19.19              SIEVED  7.07ROCK PERCENT
                                                      (15.67)      1
    27             19.24    17.04    15.57    12.29     9.18      1.74    34.34     .37
                   33.47    29.64    27.09    21.38    15.97      1.77    33.21     .36
                   FRAGMENT 16.50              SIEVED  7.02ROCK PERCENT
                                                                   1
    37             16.21    14.43    12.93     9.16     6.03      1.80    32.08     .53
                   29.17    25.97    23.27    16.48    10.85      1.84    30.57     .18
                   FRAGMENT 13.03              SIEVED  5.36ROCK PERCENT  2.04
                                                                   1
    48             14.09    12.68    11.18     8.64     6.06      1.90    28.30     .27
                   26.77    24.09    21.24    16.41    11.51      1.93    27.17     .34
                   FRAGMENT 10.03              SIEVED  7.87ROCK PERCENT

      1=FIST
      2=CORE
      3=LOOSE
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PROVIDENCE SILT LOAM (62,03,P,b)

Location: Marshall County, SE¼ of NE¼, sec. 20, T3S R2W.
Vegetation and land use: Lespedeza
Topography: 5 percent slope
Drainage: Moderately well drained
Parent Material: Loess over coastal plain.
Described and sampled by: M. C. Tyer, P. J. Barlow, G. P. Lawless

Horizon	Description
Ap	0 to 3 inches. Brown to dark brown (10YR 4/3) heavy silt loam with common medium faint brown to dark brown mottles of (7.5YR 4/4); weak fine granular structure; friable; many fine roots; medium acid; abrupt smooth boundary.
B21t	3 to 9 inches. Brown to dark brown (7.5YR 4/4) heavy silt loam; moderate medium subangular blocky structure; friable; few fine roots; few fine distinct black and brown concretions and stains; patchy clay films on ped faces; medium acid; clear wavy boundary.
B22t	9 to 14 inches. Brown to dark brown (7.5YR 4/4) silty clay loam; with many moderate medium distinct mottles of brown (10YR 5/3); moderate medium subangular blocky structure; friable; few fine roots; few fine distinct black and brown stains; patchy clay films on ped faces; medium acid; clear wavy boundary.
B23tx	14 to 23 inches. Mottled brown to dark brown (7.5YR 4/4) and light gray (10YR 6/1-7/1) light silty clay loam; moderate fine and medium subangular blocky structure; friable to firm; few clay films on ped faces; common voids; strongly acid; clear wavy boundary.
*IIB24tx	23 to 36 inches. Brown to dark brown (7.5YR 4/4) loam; with common medium distinct pale brown (10YR 6/3) mottles and silt coatings on ped faces and in cracks; weak medium angular blocky structure; firm; compact and brittle; patchy clay films and clay bridging of sand grains; common voids; common thin polygonal cracks extending downward throughout the horizon; strongly acid; clear wavy boundary.
*IIB31tx	36 to 52 inches. Brown to dark brown (7.5YR 4/4) sandy loam with common medium distinct pale brown (10YR 6/3) silt and sand coating in cracks; weak medium angular blocky structure; firm; compact and brittle; patchy clay film on ped faces; many voids; common polygonal cracks filled with gray (10YR 6/1) silt; strongly acid; clear wavy boundary.
IIB32tx	52 to 60 inches. Mottled reddish brown (5YR 4/4), yellowish brown (5YR 4/6) and light gray (10YR 7/2); light sandy loam; weak medium angular blocky structure; firm; compact and brittle; many distinct black and brown stains and concretions; clay bridging of sand grains; many voids; strongly acid; abrupt wavy boundary.
IIC	60 to 75 inches. Brown (10YR 5/3) sand with few fine distinct mottles of strong brown (7.5YR 5/6); structureless; loose; very friable; strongly acid.

*Indicates least permeable horizons.

PROVIDENCE SILT LOAM (62,03,P,b)

WEIGHT PERCENT AND VOLUME PERCENT OF WATER RETAINED

IDENTIFICATION 62 3 1 2	TENSIONS (BARS) .1	.3	.6	3.	15.	BD G/CC	TP PCT	K IN/HR
DEPTH						1		
0	33.68	27.92	25.64	20.62	10.35	1.43	46.04	.09
	48.16	39.92	36.66	29.48	14.80	1.48	44.15	.04
	FRAGMENT	26.13		SIEVED	15.10ROCK	PERCENT		
					(9.58)	1		
3	31.49	26.88	23.87	20.52	13.55	1.54	41.89	.29
	48.49	41.39	36.75	31.60	20.86	1.61	39.25	1.66
	FRAGMENT	25.25		SIEVED	10.45ROCK	PERCENT		
						1		
9	24.84	24.14	19.99	18.98	12.86	1.61	39.25	.10
	39.99	38.86	32.18	30.55	20.70	1.65	37.74	.09
	FRAGMENT	23.05		SIEVED	8.45ROCK	PERCENT		
					(18.32)	1		
14	22.07	20.89	17.16	15.72	11.29	1.66	37.36	.04
	36.63	34.67	28.48	26.09	18.74	1.71	35.47	.02
	FRAGMENT	18.24		SIEVED	7.96ROCK	PERCENT	5.59	
						1		
23	19.54	18.37	16.31	12.50	9.17	1.77	33.21	.33
	34.58	32.51	28.86	22.12	16.23	1.80	32.08	0
	FRAGMENT	17.93		SIEVED	8.07ROCK	PERCENT	4.41	
						1		
36	15.24	14.43	11.49	8.30	5.27	1.80	32.08	.20
	27.43	25.97	20.68	14.94	9.48	1.84	30.57	.02
	FRAGMENT	13.73		SIEVED	4.22ROCK	PERCENT	17.15	
						1		
52	11.96	9.74	7.42	5.01	3.82	1.80	32.08	.19
	21.52	17.53	13.35	9.01	6.87	1.84	30.57	.19
	FRAGMENT	8.81		SIEVED	3.15ROCK	PERCENT	6.13	
						3		
60	6.34	3.68	2.43	1.61	1.02	1.81	31.70	
	11.47	6.66	4.39	2.91	1.84			
	FRAGMENT			SIEVED	1.35ROCK	PERCENT	1.42	

1=FIST
2=CORE
3=LOOSE

PROVIDENCE SILT LOAM (62,03,C,a)

Location: Marshall County, NE¼ of NE¼, sec. 20, T3S R2W.
Vegetation and land use: Corn
Topography: 5 percent slope
Drainage: Moderately well drained
Parent Material: Loess over coastal plain.
Described and sampled by: M. C. Tyer, P. J. Barlow, G. P. Lawless

Horizon	Description
Ap	0 to 3 inches. Dark yellowish brown (10YR 4/4) heavy silt loam with common medium faint mottles of yellowish brown (10YR 5/6); weak fine granular structure; friable; many fine roots; medium acid; abrupt smooth boundary.
B21t	3 to 13 inches. Strong brown (7.5YR 5/6) light silty clay loam; moderate medium subangular blocky structure; friable; many fine roots; patchy clay films on ped faces; medium acid; clear wavy boundary.
B22t	13 to 20 inches. Brown to dark brown (7.5YR 4/4) heavy silt loam; moderate medium subangular blocky structure; friable; common fine roots; patchy clay films on ped faces; few fine distinct black stains; medium acid; clear wavy boundary.
*IIB23tx	20 to 32 inches. Mottled brown to dark brown (7.5YR 4/4) and light gray (10YR 7/2) loam; moderate fine and medium subangular blocky structure; firm; compact and brittle; patchy clay films on ped faces; common fine distinct black stains and concretions; medium acid; clear wavy boundary.
*IIB24tx	32 to 42 inches. Brown to dark brown (7.5YR 4/4) loam with common light gray (10YR 7/2) mottles and silt coatings on ped faces and in cracks; weak medium angular blocky structure; firm; compact and brittle; patchy clay films on ped faces; few fine distinct black stains; strongly acid; clear wavy boundary.
*IIB31tx	42 to 52 inches. Brown to dark brown (7.5YR 4/4) sandy loam with common light gray (10YR 7/2) mottles and silt coatings on ped faces and in cracks; weak medium angular blocky structure; firm; compact and brittle; clay bridging of sand grains; strongly acid; clear wavy boundary.
IIB32t	52 to 60 inches. Brown to dark brown (7.5YR 4/4) sandy loam with common light gray (10YR 7/2) mottles and silt coatings on ped faces and cracks; weak medium angular blocky structure; friable; clay bridging of sand grains; strongly acid; clear wavy boundary.
IIC	60 to 70 inches plus. Stratified strong brown (7.5YR 5/6) sandy loam and very pale brown (10YR 7/3) loam; weak medium angular blocky and structureless; friable to loose; strongly acid.

*Indicates least permeable horizons.

PROVIDENCE SILT LOAM (62,03,C,a)

```
     WEIGHT  PERCENT  AND  VOLUME  PERCENT  OF  WATER  RETAINED

IDENTIFICATION          T E N S I O N S  (BARS)
                                                                   BD        TP        K
62   3   2   1      .1        .3        .6        3.        15.     G/CC      PCT     IN/HR

      DEPTH                                                           1
       0           29.09     28.31     25.85     23.74     15.82     1.41     46.79     2.23
                   41.01     39.91     36.44     33.47     22.30     1.52     42.64      .19
                   FRAGMENT  27.24               SIEVED  10.50ROCK  PERCENT
                                                         (14.74)      1
       3           28.57     27.39     25.55     23.69     17.50     1.39     47.55      .10
                   39.71     38.07     35.51     32.92     24.32     1.53     42.26     1.17
                   FRAGMENT  25.49               SIEVED  11.08ROCK  PERCENT
                                                         (20.37)      1
      13           25.32     24.28     22.38     18.98     13.29     1.53     42.26      .29
                   38.73     37.14     34.24     29.03     20.33     1.60     39.62      .09
                   FRAGMENT  22.66               SIEVED   7.93ROCK  PERCENT  1.02
                                                         (11.16)      1
      20           19.64     18.82     15.78     13.38      9.96     1.73     34.72      .37
                   33.97     32.55     27.29     23.14     17.23     1.78     32.83      .38
                   FRAGMENT  17.73               SIEVED   6.04ROCK  PERCENT
                                                                      1
      32           17.18     15.51     13.58     10.75      7.57     1.78     32.83      .04
                   30.58     27.60     24.17     19.13     13.47     1.87     29.43      0
                   FRAGMENT  13.90               SIEVED   4.84ROCK  PERCENT  5.88
                                                                      1
      42           18.45     14.95     12.31      8.21      5.67     1.77     33.21      0
                   32.65     26.46     21.78     14.53     10.03     1.81     31.70      .19
                   FRAGMENT  12.62               SIEVED   5.24ROCK  PERCENT   .98
                                                                      1
      52           14.33     12.81     10.46      7.64      5.39     1.68     36.60      .37
                   24.07     21.52     17.57     12.83      9.05     1.73     34.72      .23
                   FRAGMENT  10.43               SIEVED   4.16ROCK  PERCENT   .73
                                                                      3
      60            6.80      4.77      3.25      2.41      1.41     1.78     32.83
                   12.10      8.49      5.78      4.28      2.50
                   FRAGMENT                      SIEVED   1.54ROCK  PERCENT  1.01


     1=FIST
     2=CORE
     3=LOOSE
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PROVIDENCE SILT LOAM (62,03,C,b)

Location: Marshall County, SW¼ or SE¼, sec. 17, T3S R2W.
Vegetation and land use: Truck crops
Topography: 4 percent slope
Drainage: Moderately well drained
Parent Material: Loess over coastal plain.
Described and sampled by: M. C. Tyer, P. J. Barlow, G. P. Lawless

Horizon	Description
Ap	0 to 3 inches. Dark yellowish brown (10YR 4/4) heavy silt loam; weak fine granular structure; friable; many fine roots; medium acid; abrupt smooth boundary.
B21t	3 to 8 inches. Brown to dark brown (7.5YR 4/4) silty clay loam; moderate medium subangular blocky structure; friable; common fine roots; patchy clay films on ped faces; few fine distinct black and brown concretions and stains; strongly acid; clear wavy boundary.
B22t	8 to 18 inches. Brown to dark brown (7.5YR 4/4) silty clay loam; moderate medium subangular blocky structure; friable; few fine roots; patchy clay films on ped faces; common medium distinct black stains; strongly acid; gradual wavy boundary.
*B23tx	18 to 27 inches. Mottled brown to dark brown (7.5YR 4/4) and light brownish gray (10YR 6/2) silt loam; weak to moderate medium subangular blocky structure; firm; compact and brittle; few fine roots; patchy clay films on ped faces; common voids; few fine distinct black stains; strongly acid; clear wavy boundary.
*B24tx	27 to 39 inches. Brown to dark brown (7.5YR 4/4) silt loam with common medium distinct light brownish gray (10YR 6/2) mottles and silt coatings on ped faces; weak medium angular blocky structure; firm; compact and brittle; patchy clay films on ped faces; common distinct black stains; common voids; strongly acid; clear wavy boundary.
*IIB25tx	39 to 48 inches. Brown to dark brown (7.5YR 4/4) heavy sandy loam with light brownish gray (10YR 6/2) mottles and silt coatings on peds; weak medium angular blocky structure; firm; compact and brittle; clay bridging of sand grains; few fine black and brown concretions and stains; strongly acid; clear wavy boundary.
IIB3t	48 to 80 inches. Brown to dark brown (7.5YR 4/4) to reddish brown (5YR 4/4) light sandy loam; weak coarse angular blocky structure; slightly firm; brittle; patchy clay films and clay bridging of sand grains; common voids; common fine and medium distinct black stains; strongly acid.

*Indicates least permeable horizons.

PROVIDENCE SILT LOAM (62,03,C,b)

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       WEIGHT  PERCENT  AND  VOLUME  PERCENT  OF  WATER  RETAINED

IDENTIFICATION          T E N S I O N S  (BARS)
                                                                  BD       TP       K
62   3   2   2     .1       .3       .6       3.       15.      G/CC     PCT     IN/HR

     DEPTH                                                          1
       0          24.92    23.15    21.34    19.42    11.78     1.42    46.42     .07
                  35.38    32.87    30.30    27.57    16.72     1.52    42.64     .15
                  FRAGMENT 21.63              SIEVED   8.81ROCK PERCENT
                                                                    1
       3          33.33    31.06    28.18    26.27    17.13     1.35    49.06      0
                  44.99    41.93    38.04    35.46    23.12     1.46    44.91     .44
                  FRAGMENT 29.62              SIEVED 19.27ROCK PERCENT 21.08
                                                                    1
       8          32.94    30.09    26.74    24.57    15.60     1.40    47.17     .92
                  46.11    42.12    37.43    34.39    21.84     1.51    43.02     .48
                  FRAGMENT 29.58              SIEVED   9.84ROCK PERCENT
                                                     (21.23)        1
      18          29.12    27.31    25.54    21.61    13.59     1.51    43.02     .12
                  43.97    41.23    38.56    32.63    20.52     1.58    40.38     .75
                  FRAGMENT 26.87              SIEVED   8.30ROCK PERCENT
                                                     (16.26)        1
      27          26.53    23.31    21.19    16.90    12.00     1.60    39.62      0
                  42.44    37.29    33.90    27.04    19.20     1.64    38.11     .03
                  FRAGMENT 21.39              SIEVED   6.97ROCK PERCENT
                                                     (15.05)

       1=FIST
       2=CORE
       3=LOOSE
```

LEXINGTON SILT LOAM (62,04,P,a)

Location: Marshall County, SW¼ of SE¼, sec. 25, T4S R3W.
Vegetation and land use: Lespedeza
Topography: 6 percent slope
Drainage: Well drained
Parent Material: Loess over coastal plain
Described and sampled by: M. C. Tyer, P. J. Barlow, G. P. Lawless

Horizon	Description
Ap	0 to 4 inches. Brown to dark brown (10YR 4/3) silt loam with common medium faint mottles of dark yellowish brown (10YR 4/4); weak fine granular structure; many fine roots; slightly acid; abrupt smooth boundary.
B21t	4 to 10 inches. Brown to dark brown (7.5YR 4/4) light silty clay loam; moderate fine and medium subangular blocky structure; friable; many fine roots; patchy clay films on peds; medium acid; clear wavy boundary.
B22t	10 to 22 inches. Dark yellowish brown (10YR 4/4) silty clay loam; moderate medium subangular blocky structure; friable; common fine roots; patchy clay films on ped faces; medium acid; clear wavy boundary.
B23t	22 to 34 inches. Brown to dark brown (7.5YR 4/4) heavy silt loam with light yellowish brown (10YR 6/4) silt coatings on ped faces; moderate medium subangular and angular blocky structure; friable; few fine roots; few fine distinct black stains; patchy clay films on ped faces; medium acid; clear wavy boundary.
*IIB24t	34 to 44 inches. Reddish brown (5YR 4/4) loam with few medium distinct pockets and coatings of pale brown (10YR 6/3) silt; weak medium angular blocky structure; friable; sand grains coated and bridged with clay; common fine to medium distinct black stains; strongly acid; clear wavy boundary.
IIB31t	44 to 68 inches. Reddish brown (5YR 4/4) sandy loam with few medium distinct pale brown (10YR 6/3) sand pockets; weak medium subangular blocky structure; friable; sand grains coated and bridged with clay; strongly acid; clear wavy boundary.
IIB32t	68 to 80 inches. Yellowish red (5YR 5/8) coarse sandy loam with common medium pockets of pale brown (10YR 6/3) sand; weak medium coarse angular blocky structure; very friable; clay bridging of sand grains; strongly acid.

*Indicates least permeable horizons.

LEXINGTON SILT LOAM (62,04,P,a)

WEIGHT PERCENT AND VOLUME PERCENT OF WATER RETAINED

IDENTIFICATION	TENSIONS (BARS)							
62 4 1 1	.1	.3	.6	3.	15.	BD G/CC	TP PCT	K IN/HR
DEPTH						1		
0	29.83	28.48	25.00	21.87	14.95	1.39	47.55	.59
	41.46	39.58	34.75	30.39	20.78	1.54	41.89	.55
	FRAGMENT	27.86		SIEVED	15.44ROCK	PERCENT	2.33	
						1		
4	32.67	30.25	28.57	25.41	13.90	1.43	46.04	.52
	46.71	43.25	40.85	36.33	19.87	1.59	40.00	.96
	FRAGMENT	29.34		SIEVED	15.03ROCK	PERCENT	1.12	
						1		
10	32.35	28.32	26.56	24.02	17.55	1.46	44.91	.77
	47.23	41.34	38.77	35.06	25.62	1.57	40.75	.41
	FRAGMENT	27.21		SIEVED	15.90ROCK	PERCENT	3.00	
						1		
22	26.29	23.77	22.33	17.92	12.44	1.53	42.26	1.01
	40.22	36.36	34.16	27.41	19.03	1.61	39.25	.62
	FRAGMENT	22.83		SIEVED	14.91ROCK	PERCENT	2.56	
						1		
34	20.50	16.44	13.82	11.44	8.50	1.73	34.72	.36
	35.46	28.44	23.90	19.79	14.70	1.79	32.45	1.46
	FRAGMENT	16.28		SIEVED	5.40ROCK	PERCENT		
						1		
44	16.36	14.18	11.56	9.13	6.73	1.80	32.08	.45
	29.44	25.52	20.80	16.43	12.11	1.86	29.81	1.37
	FRAGMENT	12.96		SIEVED	8.47ROCK	PERCENT	.43	
						3		
68	11.59	10.44	8.97	7.25	4.96	1.76	33.58	
	20.39	18.37	15.78	12.76	8.72			
	FRAGMENT			SIEVED	4.06ROCK	PERCENT	.57	

1=FIST
2=CORE
3=LOOSE

LEXINGTON SILT LOAM (62,04,P,b)

Location: Marshall County, SW¼ of SW¼, sec. 25, T4S R3W.
Vegetation and land use: Lespedeza
Topography: 4 percent slope
Drainage: Well drained
Parent Material: Loess over coastal plain material
Described and sampled by: M. C. Tyer, P. J. Barlow, G. P. Lawless

Horizon	Description
Ap	0 to 5 inches. Brown to dark brown (10YR 4/3) silt loam with common medium faint mottles of dark yellowish brown (10YR 4/4); weak fine granular structure; friable; many fine roots; slightly acid; abrupt smooth boundary.
B21t	5 to 14 inches. Brown to dark brown (7.5YR 4/4) silty clay loam; moderate and medium subangular blocky structure; friable; patchy clay films on peds; common fine roots; slightly acid; clear wavy boundary.
B22t	14 to 26 inches. Dark yellowish brown (10YR 4/4) silty clay loam; moderate medium subangular and angular blocky structure; friable; few fine roots; clay films on ped faces; few fine distinct black stains on ped faces; slightly acid; clear wavy boundary.
B23t	26 to 37 inches. Brown to dark brown (7.5YR 4/4) heavy silt loam; with few fine distinct pale brown (10YR 6/3) silt coatings on ped faces; moderate medium angular blocky structure; friable; few fine roots; clay films on ped faces; few fine distinct black stains and concretions; slightly acid; clear wavy boundary.
*IIB24t	37 to 48 inches. Brown to dark brown (7.5YR 4/4) loam with few fine distinct pale brown (10YR 6/3) silt coatings on ped faces; weak to moderate medium angular blocky structure; friable; few fine roots; clay films on ped faces; common fine distinct black stains; medium acid; clear wavy boundary.
IIB3t	48 to 65 inches. Reddish brown (5YR 4/4) sandy loam with common distinct pale brown (10YR 6/3) silt coatings on ped faces; weak medium angular blocky structure; sand grains coated and bridged with clay; common medium distinct black stains; medium acid.

*Indicates least permeable horizon.

OXFORD, MISSISSIPPI

LEXINGTON SILT LOAM (62,04,P,b)

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     WEIGHT  PERCENT  AND  VOLUME  PERCENT  OF  WATER  RETAINED

IDENTIFICATION        T E N S I O N S  (BARS)
                                                                      BD        TP        K
62   4   1   2      .1       .3        .6        3.        15.       G/CC      PCT      IN/HR

     DEPTH                                                             1
      0            32.38    22.10     12.71     11.27      8.20      1.43     46.04       .21
                   46.30    31.60     18.17     16.11     11.72      1.49     43.77       .46
                   FRAGMENT 20.11                SIEVED   7.73ROCK PERCENT     .62
                                                                       1
      5            29.61    26.42     23.30     22.83     19.37      1.48     44.15      1.83
                   43.82    39.10     34.48     33.78     28.66      1.63     38.49      1.50
                   FRAGMENT 24.42                SIEVED  13.70ROCK PERCENT
                                                         (16.19)       1
     14            29.59    26.37     23.85     21.39     17.78      1.46     44.91      1.31
                   43.20    38.50     34.82     31.22     25.95      1.59     40.00      1.27
                   FRAGMENT 25.09                SIEVED  12.05ROCK PERCENT
                                                         (25.33)       1
     26            29.64    24.61     19.90     18.41     14.21      1.54     41.89       .82
                   45.64    37.89     30.64     28.35     21.88      1.60     39.62       .94
                   FRAGMENT 23.44                SIEVED  18.01ROCK PERCENT    7.32
                                                                       1
     37            22.79    19.15     14.52     13.94     11.29      1.69     36.23      1.18
                   38.51    32.36     24.53     23.55     19.08      1.74     34.34       .86
                   FRAGMENT 18.82                SIEVED  15.76ROCK PERCENT    3.58
                                                                       1
     48            20.94    16.03     14.75     11.59      8.51      1.75     33.96       .22
                   36.64    28.05     25.81     20.28     14.89      1.82     31.32       .25
                   FRAGMENT 15.38                SIEVED   5.24ROCK PERCENT
                                                                       3
     65            13.95    10.93      9.86      7.47      5.12      1.70     35.85
                   23.71    18.58     16.76     12.69      8.70
                   FRAGMENT                      SIEVED   3.41ROCK PERCENT     .37

     1=FIST
     2=CORE
     3=LOOSE
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LEXINGTON SILT LOAM (62,04,C,a)

Location: Marshall County, SE¼ of SW¼, sec. 25, T4S R3W.
Vegetation and land use: Cotton
Topography: 9 percent slope
Drainage: Well drained
Parent Material: Loess over coastal plain.
Described and sampled by: M. C. Tyer, P. J. Barlow, G. P. Lawless

Horizon	Description
Ap	0 to 3 inches. Yellowish brown (10YR 5/6) silt loam with common fine faint mottles of yellowish brown (10YR 4/4); weak fine granular structure; friable; few fine roots; medium acid; abrupt smooth boundary.
B21t	3 to 10 inches. Brown to dark brown (7.5YR 4/4) silty clay loam; moderate medium subangular blocky structure; friable; few fine roots; patchy clay films on ped faces; few fine distinct black stains; medium acid; abrupt smooth boundary.
B22t	10 to 23 inches. Brown to dark brown (7.5YR 4/4) silty clay loam with few distinct light yellowish brown (10YR 6/4) and light gray (10YR 7/1) silt on ped faces and in cracks; moderate medium angular blocky structure; friable; patchy clay films on ped faces; common medium distinct black stains and concretions; medium acid; clear wavy boundary.
*IIB23t	23 to 44 inches. Brown to dark brown (7.5YR 4/4) sandy loam with few fine distinct light yellowish brown (10YR 6/4) silt coatings on ped faces and light gray (10YR 7/1) silt in cracks and pockets; weak medium angular blocky structure; friable to firm; sand grains coated and bridged with clay; common medium distinct black stains; medium acid; clear wavy boundary.
*IIB24t	44 to 52 inches. Mottled brown to dark brown (7.5YR 4/4), light yellowish brown (10YR 6/4) and light gray (10YR 7/1) sandy loam; weak medium angular blocky structure; friable to firm; sand grains coated and bridged with clay; common medium black stains and concretions; strongly acid; clear wavy boundary.
IIB25t	52 to 80 inches. Red (2.5YR 4/6) sandy clay loam; weak medium angular blocky structure; friable to firm; patchy clay films on ped faces; strongly acid.

*Indicates least permeable horizons.

LEXINGTON SILT LOAM (62,04,C,a)

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     WEIGHT  PERCENT  AND  VOLUME  PERCENT  OF  WATER  RETAINED

IDENTIFICATION        T E N S I O N S  (BARS)
                                                            BD       TP       K
62   4   2   1     .1       .3       .6       3.       15.      G/CC     PCT     IN/HR

     DEPTH                                                         1
      0            22.98    20.88    17.19    16.11    12.14    1.62     38.87    .02
                   37.22    33.82    27.84    26.09    19.66    1.69     36.23     0
                   FRAGMENT 18.75             SIEVED   8.57ROCK PERCENT
                                                                   1
      3            28.57    23.62    20.10    18.60    14.50    1.55     41.51    .36
                   44.28    36.61    31.15    28.83    22.47    1.65     37.74    .48
                   FRAGMENT 21.88             SIEVED  10.52ROCK PERCENT
                                                                   1
     10            25.11    21.23    17.93    16.38     8.08    1.68     36.60    .53
                   42.18    35.66    30.12    27.51    13.57    1.72     35.09    .12
                   FRAGMENT 18.71             SIEVED   9.93ROCK PERCENT  1.17
                                                                   1
     23            21.10    15.71    13.13    12.23     9.45    1.77     33.21    .29
                   37.34    27.80    23.24    21.64    16.72    1.80     32.08     0
                   FRAGMENT 15.74             SIEVED   7.48ROCK PERCENT   .16

      1=FIST
      2=CORE
      3=LOOSE
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OXFORD, MISSISSIPPI

LEXINGTON SILT LOAM (62,04,C,b)

Location: Marshall County, SE¼ of SW¼, sec. 23, T4S R3W.
Vegetation and land use: Cotton
Topography: 8 percent slope
Drainage: Well drained
Parent Material: Loess over coastal plain
Described and sampled by: M. C. Tyer, P. J. Barlow, G. P. Lawless

Horizon	Description
Ap	0 to 4 inches. Brown to dark brown (10YR 4/3) silt loam with common medium faint mottles of brown to dark brown (7.5YR 4/4); weak fine granular structure; friable; common fine roots; abrupt smooth boundary.
B21t	4 to 12 inches. Brown to dark brown (7.5YR 4/4) silty clay loam; moderate medium subangular blocky structure; friable; few fine roots; patchy clay films on ped faces; slightly acid; clear wavy boundary.
B22t	12 to 21 inches. Brown to dark brown (7.5YR 4/4) silty clay loam with common distinct light yellowish brown (10YR 6/4) silt coating on ped faces and in cracks; moderate medium angular and subangular blocky structure; friable; few fine roots; patchy clay films on ped faces; common medium black stains; medium acid; clear wavy boundary.
*IIB23t	21 to 31 inches. Brown to dark brown (7.5YR 4/4) silt loam with common distinct light yellowish brown (10YR 6/4) silt coatings on ped faces and in cracks; weak medium angular blocky structure; friable to firm; common fine and medium distinct black and brown concretions and stains; patchy clay films; medium acid; clear wavy boundary.
IIB24t	31 to 46 inches. Brown to dark brown (7.5YR 4/4) loam with common distinct light brownish gray (10YR 6/2) silt coatings on ped faces and in cracks; weak medium angular blocky structure; friable; common distinct black and brown stains; medium acid; clear wavy boundary.
IIB25t	46 to 59 inches. Dark yellowish brown (10YR 4/4) sandy loam with common distinct light brownish gray (10YR 6/2) silt coatings on ped faces and in cracks; weak medium angular blocky structure; friable to firm; few fine distinct black and brown stains and concretions; patchy clay films on ped faces; medium acid; clear wavy boundary.
IIC	59 to 66 inches. Mottled and stratified light yellowish brown (10YR 6/4) and dark yellowish brown (10YR 4/4) loamy sand; structureless; very friable; strongly acid; clear wavy boundary.
IIBtb	66 to 80 inches. Red (2.5YR 4/6) sandy clay loam with common distinct mottles of light yellowish brown (10YR 6/4); moderate medium subangular and angular blocky structure; friable; patchy clay films on peds; strongly acid.

*Indicates least permeable horizon.

LEXINGTON SILT LOAM (62,04,C,b)

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    WEIGHT  PERCENT  AND  VOLUME  PERCENT  OF  WATER  RETAINED

IDENTIFICATION        T E N S I O N S  (BARS)
                                                              BD       TP        K
62   4   2   2     .1       .3       .6       3.      15.    G/CC     PCT     IN/HR

     DEPTH                                                     1
      0            26.00    20.98    17.11    15.44    12.31    1.59    40.00     .02
                   41.34    33.35    27.20    24.54    19.57    1.65    37.74     .04
                   FRAGMENT 20.40             SIEVED  9.12ROCK PERCENT
                                                               1
      4            28.63    24.46    19.99    18.99    15.54    1.43    46.04     .53
                   40.94    34.97    28.58    27.15    22.22    1.55    41.51     .94
                   FRAGMENT 24.66             SIEVED 10.99ROCK PERCENT
                                                     (18.70)   1
     12            25.89    21.64    17.25    16.97    13.22    1.58    40.38     .81
                   40.90    34.19    27.25    26.81    20.88    1.64    38.11     .36
                   FRAGMENT 21.38             SIEVED 10.06ROCK PERCENT    .57
                                                               1
     21            24.47    18.96    15.81    14.66    11.73    1.67    36.98     .87
                   40.86    31.66    26.40    24.48    19.58    1.72    35.09     .63
                   FRAGMENT 18.73             SIEVED  8.22ROCK PERCENT    .07
                                                               3
     31            16.75    14.28    14.18    12.42    10.36    1.33    49.81
                   22.27    18.99    18.85    16.51    13.77
                   FRAGMENT                   SIEVED  9.46ROCK PERCENT   1.27

      1=FIST
      2=CORE
      3=LOOSE
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CAHABA FINE SANDY CLAY LOAM (62,05,P,a and b)

Location: Marshall County, SE¼ of NE¼, Sec. 20, T3S R2W.
Vegetation and land use: Lespedeza
Topography: 16 percent slope; pit b 20 percent slope.
Drainage: Well drained
Parent Material: Coastal plain
Described and sampled by: M. C. Tyer, P. J. Barlow, G. P. Lawless

Horizon	Description
Pit a	
Ap	0 to 4 inches. Dark yellowish brown (10YR 4/4) fine sandy clay loam with common medium and coarse distinct mottles of yellowish red (5YR 4/6); weak fine granular structure; friable; many fine roots; medium acid; abrupt smooth boundary.
B21t	4 to 10 inches. Yellowish red (5YR 4/6) sandy clay loam; moderate medium subangular blocky structure; friable; common fine roots; few fine distinct black stains; patchy clay films on ped faces; strongly acid; clear wavy boundary.
B22t	10 to 21 inches. Yellowish red (5YR 4/6) light sandy clay loam; weak to moderate medium subangular blocky structure; friable; few fine roots; sandy grains coated and bridged with clay; common fine distinct black stains; strongly acid; clear wavy boundary.
B31t	21 to 40 inches. Red (2.5Y 4/6) light sandy clay loam to sandy loam; weak medium subangular blocky structure; friable; clay bridging of sand grains; common fine distinct black stains; strongly acid; diffuse boundary.
C1	40 to 54 inches. Stratified 2-inch layers of red (2.5YR 4/6) light sandy clay loam and reddish yellow (5YR 6/8) loamy sand; weak coarse subangular blocky structure; friable; clay bridging of sand grains; on B material; abrupt wavy boundaries between B & C material.
C2	54 to 74 inches. Stratified as above with same color and texture but with one-inch layers.
Pit b	
Ap	0 to 3 inches. Brown to dark brown (10YR 4/3) loam with many medium distinct mottled of yellowish red (5YR 4/6); weak fine granular structure; friable; many fine roots; common distinct dark reddish brown to black stains; neutral; abrupt wavy boundary.
B21t	3 to 13 inches. Yellowish red (5YR 4/6) sandy clay loam; moderate medium subangular blocky structure; friable; common fine roots; clay bridging of sand grains; patchy clay films; neutral; clear wavy boundary.
B22t	13 to 23 inches. Yellowish red (5YR 4/8) light sandy clay loam; weak to moderate medium subangular and angular blocky structure; friable; few fine roots; patchy clay films on ped faces and sandy grains coated and bridged with clay; common voids; medium acid; clear wavy boundary.
B31t	23 to 33 inches. Yellowish red (5YR 4/8) sandy loam; weak medium angular and subangular blocky structure; friable; clay bridging of sandy grains; slightly acid; clear wavy boundary.
B32t	33 to 41 inches. Yellowish red (5YR 4/8) sandy loam; weak angular blocky structure; very friable; clay bridging of sand grains; slightly acid; abrupt wavy boundary.
C	41 to 60 inches. Stratified (7.5YR 6/6) loamy sand and yellowish red (5YR 4/8) sandy loam; very friable; clay bridging of sand grains; slightly acid.

CAHABA FINE SANDY CLAY LOAM (62,05,P,a and b)

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     WEIGHT  PERCENT  AND  VOLUME  PERCENT  OF  WATER  RETAINED

IDENTIFICATION        T E N S I O N S  (BARS)
                                                            BD        TP        K
62   5   1   1     .1        .3        .6        3.        15.       G/CC      PCT     IN/HR

    DEPTH                                                              1
     0             27.69     24.06     18.22     12.39     8.15      1.57      40.75     .37
                   43.47     37.77     28.60     19.45     12.79     1.59      40.00     .68
                   FRAGMENT  24.74               SIEVED    6.28ROCK  PERCENT    .52
                                                                       1
     4             18.14     16.12     14.51     12.29     10.59     1.66      37.36     .46
                   30.11     26.75     24.08     20.40     17.57     1.73      34.72     .70
                   FRAGMENT  15.67               SIEVED    9.49ROCK  PERCENT    .28
                                                                       1
    10             17.53     14.28     11.65     10.15     8.77      1.68      36.60    1.03
                   29.45     23.99     19.57     17.05     14.73     1.73      34.72     .52
                   FRAGMENT  13.42               SIEVED    7.69ROCK  PERCENT   1.10
                                                                       1
    21             14.37     11.06      9.44      8.39     6.84      1.69      36.23    1.54
                   24.28     18.69     15.95     14.17     11.55     1.74      34.34     .73
                   FRAGMENT  11.18               SIEVED    5.09ROCK  PERCENT    .23
                                                                       3
    40              4.72      3.65      2.71      2.35     1.47      1.61      39.25
                    7.59      5.87      4.36      3.78     2.36
                   FRAGMENT                      SIEVED    1.66ROCK  PERCENT


IDENTIFICATION        T E N S I O N S  (BARS)
                                                            BD        TP
62   5   1   2     .1        .3        .6        3.        15.       G/CC      PCT

    DEPTH                                                              1
     0             21.50     19.55     14.39      8.65     6.04      1.66      37.36     .07
                   35.69     32.45     23.88     14.35     10.02     1.70      35.85     .04
                   FRAGMENT  18.88               SIEVED    5.35ROCK  PERCENT    .54
                                                                       1
     3             20.65     18.55     17.56     15.08     12.14     1.61      39.25     .22
                   33.24     29.86     28.27     24.27     19.54     1.71      35.47    1.30
                   FRAGMENT  18.61               SIEVED    8.69ROCK  PERCENT    .77
                                                                       1
    13             17.94     15.13     12.91      9.73     8.20      1.73      34.72     .29
                   31.03     26.17     22.33     16.83     14.18     1.79      32.45     .67
                   FRAGMENT  13.74               SIEVED   10.17ROCK  PERCENT   4.37
                                                                       1
    23             13.76     11.01      9.31      7.32     5.88      1.76      33.58     .48
                   24.21     19.37     16.38     12.88     10.34     1.80      32.08    1.37
                   FRAGMENT  10.54               SIEVED    6.98ROCK  PERCENT   2.56
                                                                       1
    33             10.68      8.18      6.50      5.39     3.74      1.67      36.98    2.63
                   17.83     13.66     10.85      9.00     6.24      1.80      32.08    1.23
                   FRAGMENT  11.45               SIEVED    2.82ROCK  PERCENT   2.10
                                                                       3
    41              2.15      1.54       .82       .77      .80      1.64      38.11
                    3.52      2.52      1.34      1.26     1.31
                   FRAGMENT                      SIEVED    1.06ROCK  PERCENT   1.33
                                                                       3
    41             13.13     11.64      9.90      7.69     5.70      1.40      47.17
                   18.38     16.29     13.86     10.76     7.98
                   FRAGMENT                      SIEVED    2.76ROCK  PERCENT    .33


     1=FIST
     2=CORE
     3=LOOSE
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MEMPHIS SILT LOAM (62,06,P,a)

Location: Marshall County, SW¼ of NW¼, sec. 35, T4S R4W.
Vegetation and land use: Lespedeza
Topography: 3 percent slope
Drainage: Well drained
Parent Material: Loess over coastal plain
Described and sampled by: M. C. Tyer, P. J. Barlow, G. P. Lawless

Horizon	Description
Ap	0 to 4 inches. Brown to dark brown (10YR 4/3) silt loam with common medium faint mottles of dark brown (7.5YR 4/4); weak fine granular structure; friable; many fine roots; medium acid; abrupt smooth boundary.
B21t	4 to 9 inches. Dark brown (7.5YR 4/4) silty clay loam; moderate medium subangular blocky structure; friable; many fine roots; patchy clay films on ped faces; few fine and medium distinct black stains; medium acid; clear wavy boundary.
B22t	9 to 23 inches. Dark brown (7.5YR 4/4) silty clay loam; moderate medium subangular blocky structure; friable; few fine roots; patchy clay films on ped faces; many medium and coarse distinct black stains; medium acid; clear wavy boundary.
B23t	23 to 32 inches. Dark brown (7.5YR 4/4) silty clay loam; moderate medium subangular blocky structure; friable; patchy clay films on ped faces; many medium and coarse black stains; medium acid; clear wavy boundary.
B24t	32 to 42 inches. Dark brown (7.5YR 4/4) silty clay loam with common medium distinct pale yellow (10YR 6/3) silt coatings on ped faces; moderate medium subangular blocky structure; friable; patchy clay films on ped faces; few fine and medium distinct black stains; medium acid; clear wavy boundary.
*B25t	42 to 57 inches. Dark brown (7.5YR 4/4) silt loam; weak medium subangular blocky structure; friable to firm; patchy clay films on ped faces; few fine and medium distinct black stains; medium acid; clear wavy boundary.
IIB31t	57 to 68 inches. Mottled yellowish red (5YR 4/6) and brown (7.5YR 5/4) sandy loam; weak medium and coarse subangular and angular blocky structure; friable; patchy clay films; sand grains coated and bridged with clay; medium acid; clear wavy boundary.
IIB32t and A'2	68 to 78 inches. Stratified layers of yellowish red (5YR 4/6) sandy loam and pink (7.5YR 7/4) loamy sand; sandy loam layer breaks into weak medium subangular blocky structure; loamy sand is structureless; friable; clay bridging of sand grains in sandy loam layer; strongly acid; abrupt wavy boundary.
IIB't	78 to 90 inches. Red (10R 4/6) sandy clay loam; moderate medium angular blocky structure; friable; patchy clay films and clay bridging of sand grains; strongly acid.

*Indicates least permeable horizon.

MEMPHIS SILT LOAM (62,06,P,a)

```
     WEIGHT  PERCENT  AND  VOLUME  PERCENT  OF  WATER  RETAINED

IDENTIFICATION       T E N S I O N S  (BARS)
                                                                BD        TP        K
62   6   1   1      .1        .3        .6        3.        15.       G/CC      PCT     IN/HR

     DEPTH                                                                 1
      0             30.98     25.95     24.50     20.12     14.54     1.48      44.15       0
                    45.85     38.40     36.26     29.77     21.51     1.61      39.25     .04
                    FRAGMENT  24.41                 SIEVED 10.94ROCK PERCENT
                                                                           1
      4             29.47     28.17     25.21     22.07     17.96     1.39      47.55     .04
                    40.96     39.15     35.04     30.67     24.96     1.52      42.64    1.42
                    FRAGMENT  27.55                 SIEVED 12.54ROCK PERCENT
                                                          (19.32)          1
      9             31.70     28.16     27.07     20.64     16.27     1.39      47.55     .24
                    44.06     39.14     37.62     28.68     22.61     1.46      44.91     .55
                    FRAGMENT  26.72                 SIEVED  9.02ROCK PERCENT
                                                          (19.55)          1
     23             26.20     23.89     20.09     15.83     12.23     1.57      40.75     .02
                    41.13     37.50     31.54     24.85     19.20     1.60      39.62     .34
                    FRAGMENT  22.34                 SIEVED 13.51ROCK PERCENT    .18
                                                                           1
     32             22.01     19.91     17.04     13.07     10.51     1.67      36.98     .06
                    36.75     33.24     28.45     21.82     17.55     1.69      36.23     .05
                    FRAGMENT  18.71                 SIEVED 12.10ROCK PERCENT    .07
                                                                           1
     42             17.82     15.54     12.30     10.64      7.94     1.74      34.34     .42
                    31.00     27.03     21.40     18.51     13.81     1.83      30.94     .06
                    FRAGMENT  15.88                 SIEVED  9.75ROCK PERCENT    .17
                                                                           3
     68             13.33     10.67      6.11      5.35      4.09     1.72      35.09
                    22.92     18.35     10.50      9.20      7.03
                    FRAGMENT                        SIEVED  5.59ROCK PERCENT    .24

       1=FIST
       2=CORE
       3=LOOSE
```

MEMPHIS SILT LOAM (62,06,P,b)

Location: Marshall County, SE¼ of NE¼, sec. 34, T4S R3W.
Vegetation and land use: Lespedeza
Topography: 5 percent slope
Drainage: Well drained
Parent Material: Loess over coastal plain
Described and sampled by: M. C. Tyer, P. J. Barlow, G. P. Lawless

Horizon	Description
Ap	0 to 5 inches. Brown to dark brown (10YR 4/3) silt loam with few fine faint mottles of dark brown (7.5YR 4/4); weak fine granular structure; friable; many fine roots; abrupt smooth boundary.
B21t	5 to 17 inches. Dark yellowish brown (10YR 4/4) silty clay loam; moderate medium subangular blocky structure; friable; common fine roots; patchy clay films on ped faces; medium acid; clear wavy boundary.
B22t	17 to 34 inches. Dark brown (7.5YR 4/4) silty clay loam; moderate medium subangular blocky structure; friable; patchy clay films on ped faces; few medium distinct black stains; medium acid; clear wavy boundary.
B23t	34 to 46 inches. Dark brown (7.5YR 4/4) silty clay loam with common medium distinct pale brown (10YR 6/3) silt coatings on ped faces and in cracks; moderate medium subangular blocky structure; friable; patchy clay films on ped faces; common fine and medium distinct black stains; medium acid; clear wavy boundary.
*B24t	46 to 66 inches. Dark brown (7.5YR 4/4) silt loam with many distinct pale brown (10YR 6/3) silt coatings on ped faces and in cracks; moderate medium angular blocky structure; friable; patchy clay films on ped faces; medium acid; clear wavy boundary.
IIB3t	66 to 80 inches. Reddish brown (5YR 4/4) sandy loam with common distinct pale brown (10YR 6/3) silt coatings on ped faces and in cracks; weak medium angular blocky structure; friable; clay bridging of sand grains; medium acid.

*Indicates least permeable horizons.

MEMPHIS SILT LOAM (62,06,P,b)

```
     WEIGHT  PERCENT  AND  VOLUME  PERCENT  OF  WATER  RETAINED

IDENTIFICATION         T E N S I O N S  (BARS)
                                                                   BD       TP       K
62   6   1   2      .1        .3        .6        3.       15.      G/CC     PCT     IN/HR

     DEPTH                                                            1
      0             29.09     23.96     15.62     12.90     7.54     1.45     45.28      0
                    42.18     34.74     22.64     18.70    10.93     1.57     40.75    .05
                    FRAGMENT 22.41                SIEVED  9.09ROCK PERCENT  1.04
                                                                      1
      5             27.87     24.88     22.85     20.39    16.52     1.30     50.94    .27
                    36.23     32.34     29.70     26.50    21.47     1.38     47.92    .29
                    FRAGMENT 24.51                SIEVED 18.56ROCK PERCENT   .09
                                                                      1
     17             29.34     26.79     25.57     22.58    17.91     1.40     47.17    .65
                    41.07     37.50     35.79     31.61    25.07     1.50     43.40   1.50
                    FRAGMENT 27.68                SIEVED 18.66ROCK PERCENT   .58
                                                                      1
     34             28.87     25.70     23.20     18.44    14.58     1.47     44.53    .35
                    42.43     37.77     34.10     27.10    21.43     1.51     43.02    .66
                    FRAGMENT 26.45                SIEVED 13.88ROCK PERCENT   .79
                                                                      1
     46             24.06     21.54     18.99     15.18    11.49     1.56     41.13    .22
                    37.53     33.60     29.62     23.68    17.92     1.59     40.00    .33
                    FRAGMENT 21.72                SIEVED  9.16ROCK PERCENT   .34
                                                                      1
     66             17.55     15.21     13.43     10.75     7.84     1.72     35.09    .27
                    30.18     26.16     23.09     18.49    13.48     1.76     33.58      0
                    FRAGMENT 15.88                SIEVED 10.48ROCK PERCENT  6.45

     1=FIST
     2=CORE
     3=LOOSE
```

MEMPHIS SILT LOAM (62,06,C,a)

Location: Marshall County, NE¼ of NE¼, sec. 20, T3S R2W.
Vegetation and land use: Corn
Topography: 2 percent slope
Drainage: Well drained
Parent Material: Loess over coastal plain
Described and sampled by: M. C. Tyer, P. J. Barlow, G. P. Lawless

Horizon	Description
Ap	0 to 6 inches. Brown to dark brown (10YR 4/3) silt loam with few fine faint mottles of brown to dark brown (7.5YR 4/4); weak fine granular structure; friable; many fine roots; few worm holes; medium acid; abrupt smooth boundary.
B21t	6 to 16 inches. Brown to dark brown (7.5YR 4/4) silty clay loam; moderate medium subangular blocky structure; friable; patchy clay films on ped faces; many fine roots; few fine distinct black and brown stains; medium acid; clear wavy boundary.
B22t	16 to 27 inches. Brown to dark brown (7.5YR 4/4) silty clay loam; moderate medium subangular blocky structure; friable; patchy clay films on ped faces; common fine roots; many medium distinct black stains; strongly acid; clear wavy boundary.
B23t	27 to 40 inches. Brown to dark brown (7.5YR 4/4) silty clay loam; moderate medium subangular blocky structure; friable; common medium distinct pale brown (10YR 6/3) silt coatings on ped faces; patchy clay films; common medium distinct black stains; strongly acid; clear wavy boundary.
B24t	40 to 52 inches. Reddish brown (5YR 4/4) silty clay loam; moderate medium subangular blocky structure; patchy clay films on ped faces; common medium distinct black stains; gray (10YR 6/1) silt coating on ped faces; strongly acid; clear wavy boundary.
*B25t	52 to 72 inches. Dark reddish brown (5YR 3/4) silty clay loam; moderate medium and coarse angular blocky structure; friable; patchy clay films on ped faces; common gray (10YR 6/1) silt coatings on ped faces; common medium distinct black stains; strongly acid.

*Indicates least permeable horizon.

OXFORD, MISSISSIPPI

MEMPHIS SILT LOAM (62,06,C,a)

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     WEIGHT  PERCENT  AND  VOLUME  PERCENT  OF  WATER  RETAINED

IDENTIFICATION        T E N S I O N S  (BARS)
                                                              BD        TP        K
62   6   2   1     .1        .3        .6        3.        15.        G/CC      PCT     IN/HR

      DEPTH                                                              1
        0          24.89     22.65     19.99     15.64      9.58      1.38     47.92      .18
                   34.34     31.25     27.58     21.58     13.22      1.51     43.02      .23
                   FRAGMENT  20.68                  SIEVED  7.26ROCK  PERCENT
                                                                         1
        6          28.66     26.31     24.77     22.76     18.84      1.43     46.04      .44
                   40.98     37.62     35.42     32.54     26.94      1.55     41.51     1.13
                   FRAGMENT  25.05                  SIEVED 19.76ROCK  PERCENT   .17
                                                                         1
       16          30.66     27.87     25.72     22.09     17.52      1.38     47.92     1.16
                   42.31     38.46     35.49     30.48     24.17      1.50     43.40      .80
                   FRAGMENT  26.29                  SIEVED 14.28ROCK  PERCENT   .08
                                                                         1
       27          29.59     26.72     24.55     18.89      8.97      1.40     47.17      .03
                   41.42     37.40     34.37     26.44     12.55      1.51     43.02      .24
                   FRAGMENT  28.40                  SIEVED 11.88ROCK  PERCENT  1.65

        1=FIST
        2=CORE
        3=LOOSE
```

MEMPHIS SILT LOAM (62,06,C,b)

Location: Marshall County, NW¼ SW¼, sec. 35, T4S R3W.
Vegetation and land use: Cotton
Topography: 2 percent slope
Drainage: Well drained
Parent Material: Loess over coastal plain
Described and sampled by: M. C. Tyer, P. J. Barlow, G. P. Lawless

Horizon	Description
Ap	0 to 4 inches. Brown to dark brown (10YR 4/3) silt loam; weak fine granular structure; friable; common fine roots; abrupt smooth boundary.
B21t	4 to 12 inches. Dark yellowish brown (10YR 4/4) to dark brown (7.5YR 4/4) silty clay loam; moderate medium subangular blocky structure; friable; few fine roots; patchy clay films on ped faces; few fine and medium distinct black stains; medium acid; clear wavy boundary.
B22t	12 to 30 inches. Dark brown (7.5YR 4/4) silty clay loam with moderate medium subangular blocky structure; friable; few fine roots; patchy clay films on ped faces; common medium distinct black stains; medium acid; clear wavy boundary.
B23t	30 to 39 inches. Dark brown (7.5YR 4/4) silty clay loam with common distinct light yellowish brown (10YR 6/4) silt coatings on ped faces; moderate medium subangular blocky structure; friable; patchy clay films on ped faces; common medium distinct black stains; medium acid; clear wavy boundary.
B24t	39 to 56 inches. Dark brown (7.5YR 4/4) silty clay loam with many distinct light yellowish brown (10YR 6/4) silt coatings on ped faces and in cracks; moderate medium subangular blocky structure; friable; patchy clay films on ped faces; common medium distinct black stains; medium acid; clear wavy boundary.
IIB25t	56 to 72 inches. Yellowish red (5YR 4/6) silt loam with high sand content; common light yellowish brown (10YR 6/4) silt coating on ped faces; weak medium and coarse subangular and angular blocky structure; friable; patchy clay films on ped faces; strongly acid; clear wavy boundary.
*IIB26t	72 to 80 inches. Reddish brown (2.5YR 4/4) clay loam with moderate medium angular blocky structure; friable; clay films on ped faces; strongly acid.

*Indicates least permeable horizon.

MEMPHIS SILT LOAM (62,06,C,b)

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              WEIGHT  PERCENT  AND  VOLUME  PERCENT  OF  WATER  RETAINED

IDENTIFICATION         T E N S I O N S  (BARS)
                                                                                                    BD           TP        K
62         6     2     2        .1          .3          .6           3.          15.        G/CC         PCT        IN/HR

           DEPTH                                                                                   1
              0               28.84        24.16        23.22         20.30        12.65         1.33        49.81        .02
                              38.35        32.13        30.88         26.99        16.82         1.41        46.79         0
                              FRAGMENT 25.38                          SIEVED  9.27ROCK PERCENT  1.71
                                                                               (18.75)             1
              4               30.69        28.17        26.66         25.00        17.95         1.35        49.06        .12
                              41.43        38.02        35.99         33.75        24.23         1.46        44.91        .45
                              FRAGMENT 26.67                          SIEVED 18.92ROCK PERCENT   .17
                                                                                                   1
            12                31.85        28.08        27.48         23.50        16.02         1.35        49.06        .74
                              42.99        37.90        37.09         31.72        21.62         1.42        46.42       1.06
                              FRAGMENT 28.36                          SIEVED 18.83ROCK PERCENT   .11
                                                                                                   1
            30                29.95        26.60        25.49         22.17        13.74         1.44        45.66        .16
                              43.12        38.30        36.70         31.92        19.78         1.51        43.02       1.99
                              FRAGMENT 26.02                          SIEVED 14.77ROCK PERCENT  1.51

              1=FIST
              2=CORE
              3=LOOSE
```

UNNAMED*"03" VERY GRAVELLY LOAM (63,03,P,a)

Location: Southern Cochise Co. area, Walnut Gulch Watershed: 1800' W, 200'S, E¼ cor. Sec. 36, T19S, R23E; NNE of mesquite near road in drainage above pond.
Vegetation and land use: Curly mesquite, black grama, guajillo, annuals.
Topography: Nearly level or level, 6 percent slopes, convex, elev. 4950'.
Drainage: Surface has medium to rapid drainage; well drained internally. Moderately slow to slow permeability. Ground water is deep.
Parent Material: Alluvium from rhyolite, andesite, granite, tuff, limestone.
Described and sampled by: Fred Gelderman and G. A. Schumaker

Horizon	Description
A1	0 to 3 inches. Dark reddish gray (5YR 4/2) very gravelly loam, dark reddish brown (5YR 3/3) when moist; moderate fine and moderate crumb structure; weakly coherent, very friable, slightly sticky, slightly plastic; plentiful very fine roots; common very fine and fine tubular and interstitial pores; neutral, pH 7.0; abrupt smooth boundary.
B1	3 to 7 inches. Dark reddish brown (5YR 3/3) gravelly clay loam, dark reddish brown (5YR 3/3) when moist; weak medium subangular blocky structure; slightly hard, friable, slightly sticky, slightly plastic; plentiful very fine roots; common very fine and fine tubular and interstitial pores; few thin clay films on ped faces; moderately alkaline, pH 8.0; abrupt smooth boundary.
B21t	7 to 11 inches. Dark reddish brown (5YR 3/3), either dry or moist, clay, reddish brown (5YR 4/4) when crushed; weak and moderate medium and coarse subangular blocky structure; slightly hard, friable, sticky, plastic; plentiful very fine roots; few very fine tubular and common very fine and fine pores; common thin clay films on ped faces; moderately alkaline, pH 8.0; clear wavy boundary.
B22tca	11 to 24 inches. Reddish brown (5YR 4/4) when dry or moist, clay, reddish brown (5YR 5/4) crushed, common fine distinct reddish yellow (5YR 6/6) and light reddish brown (6/4) mottles, yellowish red (5YR 5/6) and reddish brown (5YR 5/4) when moist; weak medium columnar breaking to weak medium subangular blocky structure; hard, firm, sticky, plastic; plentiful very fine roots; few very fine tubular and common very fine and fine interstitial pores; many moderately thick clay films on ped faces, and in tubular and interstitial pores; slight to strong effervescence; moderately alkaline, pH 8.0; gradual wavy boundary.
IIC1ca	24 to 42 inches. White (5YR 8/1) sandy loam, pinkish gray (5YR 7/2) when moist; massive, weakly cemented, hard, firm, nonsticky, nonplastic; few very fine and fine roots; very few very fine tubular pores; violently effervescent; moderately alkaline, pH 8.0; clear smooth boundary.
IIIC2ca	42 to 51 inches plus. Pinkish gray (5YR 7/2) gravelly sandy loam, light reddish brown (5YR 6/4) when moist; massive; weakly coherent, friable, nonsticky, nonplastic; violently effervescent; moderately alkaline, pH 8.0.

Remarks: This soil was mapped Earp in the soil survey of this watershed. It is similar to the Bernardino series described in Santa Cruz County.
Depth to the IIC1ca ranges from 20-25 in. in this pit. Soil on top of this ridge is similar to Hathaway soils.

*Correlated as Bernardino gravelly loam (1967).

UNNAMED "03" VERY GRAVELLY LOAM (63,03,P,a)

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     WEIGHT  PERCENT  AND  VOLUME  PERCENT  OF  WATER  RETAINED

IDENTIFICATION         T E N S I O N S  (BARS)
                                                                 BD       TP       K
63   3   1   1     .1        .3        .6        3.        15.     G/CC     PCT    IN/HR

    DEPTH                                                           3
     0             13.92     10.57      9.31      8.40      5.34    1.51     43.02
                   21.01     15.96     14.05     12.68      8.06
                   FRAGMENT                        SIEVED   6.77ROCK PERCENT 35.98
                                                                    1
     3             16.66     15.06     12.92     12.36      8.43    1.62     38.87    2.37
                   26.98     24.39     20.93     20.02     13.65    1.77     33.21     .65
                   FRAGMENT  13.20                 SIEVED  10.11ROCK PERCENT 38.19
                                                                    1
     7             22.00     19.27     19.11     16.95     12.58    1.58     40.38     .92
                   34.76     30.44     30.19     26.78     19.87    1.83     30.94      0
                   FRAGMENT  17.24                 SIEVED  14.02ROCK PERCENT 18.58
                                                                    1
    11             20.40     16.60     16.22     15.28     12.29    1.48     44.15     .22
                   30.19     24.56     24.00     22.61     18.18    1.71     35.47     .11
                   FRAGMENT  14.24                 SIEVED  14.10ROCK PERCENT 12.66
                                                                    3
    24             20.16     14.92     13.31     10.23      5.39    1.42     46.42
                   28.62     21.18     18.90     14.52      7.65
                   FRAGMENT                        SIEVED   7.94ROCK PERCENT 31.28
                                                                    3
    42             11.69      7.08      6.48      5.19      4.43    1.71     35.47
                   19.98     12.10     11.08      8.87      7.57
                   FRAGMENT                        SIEVED  10.43ROCK PERCENT 58.38

     1=FIST
     2=CORE
     3=LOOSE
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UNNAMED*"03" VERY GRAVELLY LOAM (63,03,P,b)

Location: Southern Cochise County area, Walnut Gulch Watershed: 1850' W, 700' S of E¼ cor. Sec. 36, T19S, R23E; S of mesquite near road in drainage above pond.
Vegetation and land use: Curly mesquite; black, blue and sideoats gramas, snakeweed.
Topography: Lower slope of ridge formed by dissection of terrace by drainages; gently sloping (11%), convex (B), elev. 4970'.
Drainage: Surface is moderately to rapidly drained; well drained internally. Ground water is deep.
Parent Material: Alluvium from rhyolite, granite, tuff, andesite, limestone.
Described and sampled by: Fred Gelderman and G. A. Schumaker

Horizon	Description
A1	0 to 4 inches. Brown (7.5YR 4/2) very gravelly loam, dark brown (7.5YR 3/2) when moist; moderate fine and medium crumb structure; weakly coherent, friable, nonsticky, slightly plastic; plentiful very fine and fine roots; few very fine and fine tubular and many very fine interstitial pores; slightly acid, pH 6.5; abrupt smooth boundary.
B1	4 to 10 inches. Dark reddish brown (5YR 3/3) gravelly clay loam, reddish brown (5YR 4/4) crushed, dark reddish brown (5YR 3/3) when moist; weak medium and coarse subangular blocky structure; slightly hard, friable, sticky, slightly plastic; plentiful very fine and fine roots; few very fine and fine tubular and common very fine and fine interstitial pores; few thin clay films on ped faces; mildly alkaline, pH 7.5; clear smooth boundary.
B21t	10 to 18 inches. Dark reddish brown (5YR 3/4) clay, dark reddish brown (3/4) when crushed, dark reddish brown (5YR 3/4) when moist; moderate fine and medium prismatic breaking to moderate medium subangular blocky and angular blocky structure; very hard, firm, sticky, plastic; few very fine and fine roots; few very fine tubular and common very fine interstitial pores; many moderately thick clay films on ped faces, and line tubular and interstitial pores; mildly alkaline, pH 7.5; gradual smooth boundary.
B22tca	18 to 27 inches. Reddish brown (5YR 4/4) dry and moist gravelly clay, common fine distinct reddish yellow (5YR 6/6) and light reddish brown (5YR 6/4) mottles, yellowish red (5YR 5/6) and reddish brown (5YR 5/4) when moist; moderate fine and medium subangular blocky structure; slightly hard, firm, sticky, plastic; few very fine roots; very few very fine tubular and few very fine interstitial pores; common thin clay films on ped faces; slightly effervescent to strongly effervescent; moderately alkaline, pH 8.0; gradual wavy boundary.
IIC1ca	27 to 44 inches. Light gray (5YR 7/1) sandy loam, reddish gray (5/2) when moist; massive, weakly cemented; hard, friable, nonsticky, nonplastic; few very fine interstitial pores; violently effervescent; moderately alkaline, pH 8.0; clear wavy boundary.
IIIC2ca	44 to 48 inches plus. Light gray (5YR 7/1) gravelly sandy loam, reddish gray (5YR 5/2) when moist; massive; hard, friable, nonsticky, nonplastic; few very fine interstitial pores; violently effervescent; moderately alkaline, pH 8.0.

Remarks: This soil is similar to that described 500' N (63,03,P,a) but is on the south side of the drainage and is on a north-facing slope instead of a south-facing slope as previously. A similar soil about ¼ mi. E is reported to have been analyzed as having about 3% organic matter. This one similar to Bernardino.

*Correlated as Bernardino gravelly loam (1967).

UNNAMED "03" VERY GRAVELLY LOAM (63,03,P,b)

```
       WEIGHT  PERCENT  AND  VOLUME  PERCENT  OF  WATER  RETAINED

IDENTIFICATION        T E N S I O N S  (BARS)
                                                                BD      TP       K
63   3   1   2     .1      .3      .6      3.      15.     G/CC    PCT    IN/HR

     DEPTH                                                         3
      0            12.72   11.34    9.02    7.91    5.08   1.51    43.02
                   19.20   17.12   13.62   11.94    7.67
                   FRAGMENT                 SIEVED  6.25ROCK PERCENT 37.42
                                                                   3
      4            18.25   15.27   12.98   11.99    8.04   1.35    49.06
                   24.63   20.61   17.52   16.18   10.85
                   FRAGMENT                 SIEVED  7.65ROCK PERCENT 36.71
                                                                   1
     10            30.55   24.76   22.70   19.60   16.90   1.43    46.04     .44
                   43.68   35.40   32.46   28.02   24.16   1.69    36.23     .10
                   FRAGMENT 26.22           SIEVED 19.34ROCK PERCENT 34.19
                                                                   3
     18            18.04   14.12   13.72   12.32    9.87   1.40    47.17
                   25.25   19.76   19.20   17.24   13.81
                   FRAGMENT                 SIEVED 11.07ROCK PERCENT 41.99
                                                                   3
     27            17.37   10.73    9.26    7.71    5.47   1.43    46.04
                   24.83   15.34   13.24   11.02    7.82
                   FRAGMENT                 SIEVED 10.06ROCK PERCENT 35.65

       1=FIST
       2=CORE
       3=LOOSE
```

UNNAMED*"04" VERY GRAVELLY LOAM (63,04,P,a)

Location: Southern Cochise County area, Walnut Gulch Watershed: 900' S of NE cor. Sec. 28, T19S, R23E; NE of Bennett Pond, E of power line.
Vegetation and land use: Grass aspect; few creosote, yucca, and cacti.
Topography: Gently sloping, convex (B), 11 percent slopes, elev. 4800'.
Drainage: Medium drainage on surface; well drained internally. Ground water is deep.
Parent Material: Alluvium from limestone, rhyolite, andesite, granite and others.
Described and sampled by: Fred Gelderman and G. A. Schumaker

Horizon	Description
A11	0 to 6 inches. Grayish brown (10YR 5/2)[1] very gravelly loam, dark brown (10YR 3/3) when moist; moderate fine and medium crumb structure; weakly coherent, very friable, nonsticky, nonplastic; abundant very fine and fine roots; few very fine and fine tubular and abundant very fine and fine interstitial pores; strongly effervescent; moderately alkaline, pH 8.0; clear smooth boundary.
A12	6 to 10 inches. Grayish brown (10YR 5/2) very gravelly loam; dark brown (10YR 3/3) when moist; weak medium crumb structure; weakly coherent; very friable, slightly sticky, slightly plastic; plentiful very fine roots; few very fine tubular and abundant very fine interstitial pores; strongly effervescent; moderately alkaline, pH 8.0; clear smooth boundary.
C1ca	10 to 16 inches. Light gray (10YR 7/2) light gravelly loam, brown (10YR 5/3) moist, common fine distinct lime white (10YR 8/1) mottles, light gray (10YR 7/1) when moist; massive, slightly hard, friable, slightly sticky, slightly plastic; few very fine roots; few very fine tubular and common very fine interstitial pores; violently effervescent; moderately alkaline, pH 8.0; clear smooth boundary.
C2ca	16 to 25 inches. Light gray (10YR 7/1) heavy gravelly sandy loam, grayish brown (10YR 5/2) moist, white (N8/) common fine distinct mottles, white (10YR 8/2) when moist; massive; slightly hard, friable, slightly sticky, slightly plastic; few very fine roots; few very fine tubular and few very fine interstitial pores; violently effervescent; moderately alkaline, pH 8.0; clear wavy boundary.
IIC3ca	25 to 44 inches plus. Light gray (10YR 7/2) very gravelly sandy loam, brown (10YR 5/3) when moist; massive; weakly coherent, friable, nonsticky, nonplastic; few very fine roots; few very fine interstitial pores; violently effervescent; moderately alkaline, pH 8.0.

[1] Thin (3/8") very gravelly sandy loam, moderately fine platy structure surface; grayish brown (10YR 5/2); dark brown (10YR 3/3) moist; weakly coherent, very friable, nonsticky, nonplastic; strongly effervescent; abrupt smooth boundary.

Remarks: The soil is similar to the Hathaway soils described in Santa Cruz County. Approximate gravel content of C1ca horizon is 35-40% and of C2ca is 45-50% - measured using sieve and can. South-facing slope.

*Correlated as Hathaway gravelly loam (1967).

UNNAMED "04" VERY GRAVELLY LOAM (63,04,P,a)

```
      WEIGHT  PERCENT  AND  VOLUME  PERCENT  OF  WATER  RETAINED

IDENTIFICATION        T E N S I O N S  (BARS)
                                                                  BD        TP
63   4   1   1     .1       .3       .6       3.       15.      G/CC      PCT

    DEPTH                                                            3
     0             14.57    10.92    10.19     7.86     6.24     1.56     41.13
                   22.72    17.03    15.89    12.26     9.73
                   FRAGMENT                    SIEVED   6.89ROCK PERCENT 50.37
                                                                     3
     6             18.06    13.69    12.98    11.02     8.76     1.47     44.53
                   26.54    20.12    19.08    16.19    12.87
                   FRAGMENT                    SIEVED  16.93ROCK PERCENT 72.30
                                                                     3
    10             18.43    14.00    12.28    10.66     7.02     1.48     44.15
                   27.27    20.72    18.17    15.77    10.38
                   FRAGMENT                    SIEVED   8.59ROCK PERCENT 40.91
                                                                     3
    16             16.26    11.78    11.13     7.93     5.57     1.55     41.51
                   25.20    18.25    17.25    12.29     8.63
                   FRAGMENT                    SIEVED   6.66ROCK PERCENT 42.16
                                                                     3
    25             14.58     9.36     7.64     5.89     5.51     1.67     36.98
                   24.34    15.63    12.75     9.83     9.20
                   FRAGMENT                    SIEVED   6.33ROCK PERCENT 59.29

      1=FIST
      2=CORE
      3=LOOSE
```

UNNAMED*"04" VERY GRAVELLY SANDY LOAM (63,04,P,b)

Location: Southern Cochise County area, Walnut Gulch Watershed: 800'S, 50' W of NE¼ Sec. 28, T19S, R23E; NE of Bennett Pond, E of power line.
Vegetation and land use: Grass aspect; few creosote, yucca, and cacti.
Topography: Gently sloping, convex (B), 11% slopes, elev. 4800'.
Drainage: Medium drainage on surface, well drained internally. Ground water is deep.
Parent Material: Alluvium from limestone, rhyolite, andesite, granite.
Described and sampled by: Fred Gelderman and G. A. Schumaker

Horizon	Description
A11	0 to 5 inches. Dark grayish brown (10YR 4/2) very gravelly sandy loam, very dark grayish brown (10YR 3/2) when moist; strong fine and medium crumb structure; weakly coherent, very friable, nonsticky, nonplastic; abundant very fine and fine roots; few very fine and fine tubular, abundant very fine and fine interstitial pores; strongly effervescent; moderately alkaline, pH 8.0; clear smooth boundary.
A12	5 to 9 inches. Grayish brown (10YR 5/2) gravelly loam, dark brown (10YR 3/3) when moist; moderate fine and medium crumb structure; weakly coherent; friable, slightly sticky, slightly plastic; plentiful very fine and fine roots; few very fine and fine tubular and common very fine and fine interstitial pores; strongly effervescent; moderately alkaline, pH 8.0; clear smooth boundary.
C1ca	9 to 18 inches. Gray (10YR 6/1) gravelly loam, brown (10YR 5/3) when moist; common fine distinct white (N8) lime mottles, very pale brown (10YR 8/3) when moist; massive; slightly hard, friable, slightly sticky, slightly plastic; few very fine and fine roots; few very fine tubular and few very fine interstitial pores; violently effervescent; moderately alkaline, pH 8.0; gradual wavy boundary.
IIC2ca	18 to 45 inches plus. Light gray (10YR 7/2) very gravelly loam, brown (10YR 5/3) moist, common medium distinct white (N8/) mottles, very pale brown (10YR 8/3) when moist; massive; slightly hard, friable, slightly sticky, slightly plastic; very few very fine and very few coarse roots; very few very fine tubular and few very fine interstitial pores; violently effervescent; moderately alkaline, pH 8.0.

Remarks: Soil similar to 63,04,P,a except for surface texture. North-facing slope.

*Correlated as Hathaway gravelly loam (1967).

UNNAMED "04" VERY GRAVELLY SANDY LOAM (63,04,P,b)

```
        WEIGHT  PERCENT  AND  VOLUME  PERCENT  OF  WATER  RETAINED

IDENTIFICATION         T E N S I O N S  (BARS)
                                                                  BD       TP
63   4   1   2      .1        .3        .6        3.        15.        G/CC     PCT

    DEPTH                                                              3
      0             15.27     10.08      8.89      8.33      6.55      1.52     42.64
                    23.21     15.32     13.51     12.66      9.95
                    FRAGMENT                        SIEVED   8.26ROCK  PERCENT  66.96
                                                                       3
      5             21.70     15.59     14.68     12.86     10.58      1.34     49.43
                    29.07     20.89     19.67     17.23     14.17
                    FRAGMENT                        SIEVED  10.00ROCK  PERCENT  77.22
                                                                       3
      9             22.49     17.39     14.23     11.64      7.56      1.36     48.68
                    30.58     23.65     19.35     15.83     10.28
                    FRAGMENT                        SIEVED  12.94ROCK  PERCENT  44.09
                                                                       3
     18             17.81     12.13     10.84      8.82      5.84      1.46     44.91
                    26.00     17.70     15.82     12.87      8.52
                    FRAGMENT                        SIEVED   4.11ROCK  PERCENT  59.73

      1=FIST
      2=CORE
      3=LOOSE
```

UNNAMED*"05" VERY GRAVELLY LOAM (63,05,P,a)

Location: Southern Cochise County area, Walnut Gulch Watershed: 2100' S, 1750' E of NW cor. Sec. 36, T19S, R22E, W of Lucky Hills flume 3 and 4, S of runoff study area.
Vegetation and land use: Brush aspect: tarbush, creosote, desert zinnia, whitethorn, black grama, bush muhly.
Topography: Terrace slope on ridge above drainage which has dissected old terrace. Nearly level or level (A) slopes. Slopes are 4% and convex. Elev. 4455'.
Drainage: Medium drainage on surface; well drained internally. Ground water is deep.
Parent Material: Alluvium from limestone, rhyolite, andesite, granite, and tuff.
Described and sampled by: Fred Gelderman and G. A. Schumaker

Horizon	Description
	Thin (3/4") weak medium platy surface with many fine interstitial pores and a gravel pavement.
A1	0 to 6 inches. Light brownish gray (10YR 6/2) very gravelly loam, dark brown (10YR 3/3) when moist; weak medium granular structure; weakly coherent, friable, slightly sticky, slightly plastic; plentiful very fine and fine and plentiful medium roots; common very fine and fine tubular and common very fine and fine interstitial pores; strongly effervescent; moderately alkaline, pH 8.0; abrupt smooth boundary.
C1	6 to 11 inches. Light brownish gray (10YR 6/2) light gravelly loam, brown (10YR 4/3) when moist; massive; weakly coherent, friable, slightly sticky, nonplastic; plentiful very fine and plentiful medium roots; very few fine tubular and common very fine and fine interstitial pores; strongly effervescent; moderately alkaline, pH 8.0; smooth boundary.
C2ca	11 to 23 inches. White (N8/) heavy very gravelly sandy loam, white (10YR 8/2) when moist; common medium distinct light brownish gray (10YR 6/2) mottles, brown (10YR 5/3) when moist; massive, weakly cemented; slightly hard, firm, slightly sticky, nonplastic; few very fine and fine and few medium roots; few very fine tubular and common very fine interstitial pores; violently effervescent; moderately alkaline, pH 8.2; clear wavy boundary.
IIC3	23 to 31 inches. Variegated; colors of individual sand grains, red to dark gray and clear or white very gravelly sand; single grain; loose, nonsticky, nonplastic; very few very fine and fine roots; very few very fine tubular and many fine and medium interstitial pores; slightly effervescent; mildly alkaline, pH 7.8; abrupt wavy boundary.
IIC4ca	31 to 37 inches. White (10YR 8/1) with variously colored sand grains, very gravelly loamy sand, light brownish gray (10YR 6/2) when moist; massive, weakly cemented; hard, firm, nonsticky, nonplastic; very few very fine roots; very few very fine tubular and interstitial pores; violently effervescent; moderately alkaline, pH 8.0.
	37 to 48 inches plus. A repetition of IIC3 and IIIC4; approximately 6" thick layer.

Remarks: The soil studied at this stop is similar to the Rillito series described in Pima County near Sahuarita.

All gravel below 1" is lime coated.

*Correlated as Nickel gravelly loam (1967)

UNNAMED "05" VERY GRAVELLY LOAM (63,05,P,a)

```
       WEIGHT  PERCENT  AND  VOLUME  PERCENT  OF  WATER  RETAINED

IDENTIFICATION         T E N S I O N S  (BARS)
                                                                   BD        TP
63   5   1   1     .1        .3        .6        3.        15.      G/CC      PCT

     DEPTH                                                           2
      0            16.27     11.14      9.52      6.72      6.38      1.53      42.26
                   24.89     17.04     14.56     10.28      9.76
                   FRAGMENT                        SIEVED 11.32ROCK PERCENT 34.66
                                                                     3
      6            17.85     12.62     11.74      8.39      7.65      1.46      44.91
                   26.06     18.42     17.14     12.24     11.16
                   FRAGMENT                        SIEVED 15.51ROCK PERCENT 42.81
                                                                     3
     11            20.14     14.22     13.00      7.89      6.38      1.46      44.91
                   29.40     20.76     18.98     11.51      9.31
                   FRAGMENT                        SIEVED 12.51ROCK PERCENT 49.58
                                                                     3
     23             6.39      3.94      3.03      3.90      2.81      1.74      34.34
                   11.11      6.85      5.27      6.78      4.88
                   FRAGMENT                        SIEVED  4.45ROCK PERCENT 62.24
                                                                     3
     31             5.62      4.42      3.66      2.84      2.50      1.73      34.72
                    9.72      7.64      6.33      4.91      4.32
                   FRAGMENT                        SIEVED  4.89ROCK PERCENT 53.37

       1=FIST
       2=CORE
       3=LOOSE
```

UNNAMED*"05X" VERY GRAVELLY LOAM (63,05,P,b)

Location: Southern Cochise County area, Walnut Gulch Watershed: 1900' S, 2000' E of NW cor. Sec, 36, T19S, R22E, W of Lucky Hills flumes 3 and 4; E of runoff study area.
Vegetation and land use: Brush aspect; few grasses.
Topography: Gently rolling slope of ridge on terrace below level ridge top. Slopes are 5 percent and convex. Elev. 4465'.
Drainage: Medium drainage on surface; well drained internally. Ground water is deep. Moderate to moderately slow permeability.
Parent Material: Alluvium from limestone, rhyolite, andesite, granite, and others.
Described and sampled by: Fred Gelderman and G. A. Schumaker

Horizon	Description
A1	0 to 6 inches. Light brownish gray (10YR 6/2) very gravelly loam, brown (10YR 4/3) when moist; moderate fine to medium granular structure, (surface 3/4" is a weak, medium platy very gravelly sandy loam with plentiful fine pores and a gravel pavement); weakly coherent, friable, slightly sticky, slightly plastic; plentiful very fine, few medium roots; few very fine tubular and common very fine interstitial pores; strongly effervescent; moderately alkaline, pH 8.0 (Hellige); clear smooth boundary.
C1	6 to 15 inches. Light brownish gray (10YR 6/2) gravelly loam, brown (10YR 4/3) when moist; massive; weakly coherent, friable, slightly sticky, slightly plastic; plentiful very fine and fine and few medium roots; common very fine tubular and few very fine interstitial pores; violently effervescent, moderately alkaline, pH 8.0; clear wavy boundary.
IIC2ca	15 to 45 inches plus. Pinkish gray (7.5YR 6/2) gravelly loam, common, medium, distinct, white (N 8/) lime mottles and nodules, dark yellowish brown (7.5YR 4/4) and light gray (7/2) when moist; hard, firm, slightly sticky, plastic; very few fine roots; very few very fine tubular and few very fine and fine interstitial pores; strongly to violently effervescent; moderately alkaline, pH 8.0.

Remarks: The IIC2ca seems to be old, compressed valley-fill material. Alternate strata of gravelly and very gravelly sandy loam and loams that are weakly to not lime cemented.
Massive, weak medium platy structure when soil is disturbed with a pick. Dead roots and root stains that extend laterally are flattened.

*Correlated as Rillito gravelly loam (1967).

UNNAMED "05X" VERY GRAVELLY LOAM (63,05,P,b)

```
      WEIGHT  PERCENT  AND  VOLUME  PERCENT  OF  WATER  RETAINED

IDENTIFICATION        T E N S I O N S  (BARS)
                                                                BD        TP
63   5   1   2       .1       .3       .6       3.       15.    G/CC      PCT

     DEPTH                                                         3
      0             17.11     9.96     9.33     9.12     8.78    1.42    46.42
                    24.29    14.14    13.24    12.95    12.46
                    FRAGMENT                   SIEVED  8.50ROCK PERCENT 46.43
                                                                   3
      6             19.68    12.63    11.42     8.18     7.52    1.40    47.17
                    27.55    17.68    15.98    11.45    10.52
                    FRAGMENT                   SIEVED 14.49ROCK PERCENT 33.41
                                                                   3
     15             15.62    13.54    10.71     9.56     7.29    1.46    44.91
                    22.80    19.76    15.63    13.95    10.64
                    FRAGMENT                   SIEVED 13.94ROCK PERCENT 51.10

      1=FIST
      2=CORE
      3=LOOSE
```

UNNAMED*"06" STONY SANDY LOAM (63,06,P,a)

Location: Southern Cochise County area, Walnut Gulch Watershed: 2000' N, 2000' W of SE cor. Sec. 33, T19S, R22E, N of Schiefflin Monument and N of weir #2.
Vegetation and land use: Fluffgrass, snakeweed, three-awn, dropseed, whitethorn, desert zinnia.
Topography: Nearly level or level. Slopes are 1 percent and both concave and convex on pediment of rock hill. Elev. 4260'.
Drainage: Surface has slow drainage and internally it is well drained. Rapid permeability to 11 inches on rock. Ground water is deep.
Parent Material: Granodiorite with small amount of quartzite, influenced by limestone.
Described and sampled by: Fred Gelderman and G. A. Schumaker

Horizon	Description
A1	0 to 11 inches. Grayish brown (10YR 5/2) gravelly sandy loam, very dark grayish brown (10YR 3/2) when moist; massive, but appears to be single grain; loose, loose when moist, nonsticky, nonplastic; plentiful very fine and few medium roots; few very fine and fine tubular pores; strongly effervescent; moderately alkaline, pH 8.0; abrupt irregular boundary.
R	11 to 20 inches plus. Weathered, granodiorite grading to hard rock within 6 inches (i.e. 11 to 24 inches from surface).

Remarks: Depth to colluvial stones or bedrock ranges from 5 to 18 inches at this pit.

Stones are on surface about 5 feet away from sample pit. This soil is very similar in appearance and vegetation to the Barkerville soils described in the Santa Cruz Co. area and the Safford area, Arizona, but is effervescent to the granodiorite that is noneffervescent with IN HCl.

*Correlated as Cellar stony sandy loam (1967).

UNNAMED "06" STONY SANDY LOAM (63,06,P,a)

```
      WEIGHT  PERCENT  AND  VOLUME  PERCENT  OF  WATER  RETAINED

IDENTIFICATION        T E N S I O N S  (BARS)
                                                                BD        TP
63   6   1   1    .1       .3       .6       3.       15.      G/CC      PCT

     DEPTH                                                         3
       0         12.82    8.57     7.08     6.02     2.90     1.63    38.49
                 20.89   13.96    11.54     9.81     4.72
                 FRAGMENT                    SIEVED  2.28ROCK PERCENT 12.92

      1=FIST
      2=CORE
      3=LOOSE
```

UNNAMED*"06" STONY SANDY LOAM (63,06,P,b)

Location: Southern Cochise County area, Walnut Gulch Watershed: 750' N, 2500' W of SE cor. Sec. 33, T19S, R22E, N of #2 flume and Schiefflin Monument.

Vegetation and land use: Whitethorn, mesquite, tarbush, threeawn, fluffgrass, sideoat and black gramas.

Topography: Toe-slope of rock hill above Walnut Gulch. Nearly level or level slopes, concave-convex. Slopes are 2%. Elev. 4245'.

Drainage: Surface has slow drainage; well drained internally. Rapid permeability to 16" (or rock). Ground water is deep, but there is a spring in wash nearby.

Parent Material: Granodiorite with small amounts of granite and quartzite, influenced by limestone.

Described and sampled by: Fred Gelderman and G. A. Schumaker

Horizon	Description
A11	0 to 7 inches. Grayish brown (2.5Y 5/2) sandy loam, very dark grayish brown (2.5Y 3/2) when moist; single grain; loose, very friable, slightly sticky, slightly plastic; plentiful very fine roots; few very fine tubular and plentiful very fine interstitial pores; strongly effervescent; moderately alkaline, pH 8.0; clear smooth boundary.
A12	7 to 12 inches. Light yellowish brown (2.5Y 6/4) sandy loam, light olive brown (2.5Y 5/4) when moist; single grain; loose, very friable, slightly sticky, slightly plastic; few fine roots; very few very fine tubular and plentiful very fine interstitial pores; violently effervescent; moderately alkaline, pH 8.0; gradual smooth boundary.
R	12 to 16 inches plus. Weathered bedrock that becomes extremely hard at 16 inches.

Remarks: Nearest stones on surface within 1 foot from pit. A spring or seep is 50 feet down slope, about 25 feet lower in elevation in Walnut Gulch. The large stones in and around the pool of water have white lime coatings ringing the stones up to about 4 inches above the present water line.

*Correlated as Cellar stony sandy loam (1967).

UNNAMED "06" STONY SANDY LOAM (63,06,P,b)

```
       WEIGHT  PERCENT  AND  VOLUME  PERCENT  OF  WATER  RETAINED

IDENTIFICATION        T E N S I O N S  (BARS)

                                                                BD       TP
63   6   1   2    .1       .3        .6        3.       15.      G/CC     PCT

     DEPTH
       0                                                           3
                 11.27     7.69      6.97      6.01      4.34     1.69     36.23
                 19.04    12.99     11.77     10.15      7.33
                 FRAGMENT                       SIEVED   5.60ROCK PERCENT 25.82
                                                                   3
       7         16.36    13.08     10.81      9.23      5.69     1.48     44.15
                 24.21    19.35     15.99     13.66      8.42
                 FRAGMENT                       SIEVED   7.31ROCK PERCENT 25.54

      1=FIST
      2=CORE
      3=LOOSE
```

MOOREFIELD, WEST VIRGINIA

CLARKSBURG SILT LOAM (66,01,C,a)

Location: Moorefield Experimental Watershed #3
Vegetation and land use: Pasture
Topography: 6 percent slope; colluvial toe slope at head of small stream.
Drainage: Moderately well drained
Parent Material: Colluvial material weathered from Marcellus shales, some strata of which are calcareous.
Described and sampled by: John Gorman, J. B. Burford, G. P. Lawless

Horizon	Description
Ap	0 to 11 inches. Dark grayish brown (10YR 4/2) silt loam; weak fine granular and weak fine subangular blocky structure; friable; many roots; 5 percent thin shale fragments up to 1/2" long; pH 6.0; clear wavy boundary.
B21t	11 to 18 inches. Brown (7.5YR 5/4) silty clay loam with some ped faces of yellowish brown (10YR 5/4); weak to moderate medium subangular blocky structure; friable but firmer than Ap horizon; common discontinuous clay films; few yellowish red (5YR 5/6) mottles in lower few inches; common roots; few fine shale chips; pH 5.2; clear wavy boundary.
B22t	18 to 27 inches. Brown (7.5YR 5/4) silty clay loam; many coarse mottles and streaks of yellowish red (5YR 5/6) and brownish gray (10YR 6/2) (about 70 percent yellowish red and 30 percent brownish gray) very weak coarse prisms starting in upper third of horizon; prisms break to moderate medium subangular blocky structure; somewhat firm, slightly plastic and slightly sticky; many brownish gray (10YR 6/2) clay films on peds and on prism faces; few roots; 10 percent thin shale chips up to 1/2" long; pH 5.4; clear wavy boundary.
Bx	27 to 38 inches. Brown (7.5YR 5/4) light silty clay loam; many medium mottles and streaks of yellowish red and brownish gray (10YR 6/2); very firm, slightly plastic and slightly sticky; weak coarse prisms that break to weak medium platy and weak medium subangular blocky structure; 15 percent fine shale chips; common brownish gray (10YR 6/2) clay films on peds and thick faces on exterior of prisms; pH 5.4; gradual boundary.
Cx	38 to 66 inches plus. Brown (7.5YR 5/4) shaly light silty clay loam; many medium mottles and streaks of yellowish red (5YR 5/6) and gray (10YR 6/1); weak coarse prisms breaking to weak medium subangular blocky structure; firm in place but friable when broken out; 35 percent thin shale chips up to 1/2" long increasing in quantity with depth; pH 5.6; total depth to shale bedrock estimated at 7 feet.

CLARKSBURG SILT LOAM (66,01,C,a)

```
     WEIGHT  PERCENT  AND  VOLUME  PERCENT  OF  WATER  RETAINED

IDENTIFICATION        T E N S I O N S  (BARS)
                                                                   BD       TP       K
66   1   2   1      .1        .3        .6        3.        15.     G/CC     PCT     IN/HR

    DEPTH                                                            1
     0             29.84     28.13     27.63     23.02     12.62     1.36     48.68     .47
                   40.58     38.25     37.57     31.30     17.16     1.43     46.04     .68
                   FRAGMENT  27.59                 SIEVED  12.63ROCK PERCENT   1.71
                                                                     1
    11             24.32     22.22     20.00     18.90     10.20     1.60     39.62     .10
                   38.91     35.55     32.00     30.24     16.32     1.60     39.62     .07
                   FRAGMENT  21.11                 SIEVED   9.90ROCK PERCENT   4.61
                                                                     1
    18             25.32     23.02     21.34     17.11     12.32     1.52     42.64     .24
                   38.48     34.99     32.43     26.00     18.72     1.58     40.38     .09
                   FRAGMENT  22.28                 SIEVED  11.15ROCK PERCENT   5.48
                                                                     1
    27             21.03     18.18     17.90     16.66     11.28     1.63     38.49     .13
                   34.27     29.63     29.17     27.15     18.38     1.67     36.98     .10
                   FRAGMENT  17.58                 SIEVED  10.89ROCK PERCENT   4.99
                                                                     1
    38             13.84     14.04     13.90     12.79      9.54     1.86     29.81     .09
                   25.74     26.11     25.85     23.78     17.74     1.90     28.30     .03
                   FRAGMENT  14.35                 SIEVED   9.93ROCK PERCENT  35.24

     1=FIST
     2=CORE
     3=LOOSE
```

CLARKSBURG SILT LOAM (66,01,C,b)

Location: Moorefield Experimental Watershed #3
Vegetation and land use: Pasture
Topography: 4 percent slope; colluvial toe slope at head of small stream.
Drainage: Moderately well drained
Parent Material: Colluvial material weathered from Marcellus shales, some strata of which are calcareous.
Described and sampled by: John Gorman, J. B. Burford, G. P. Lawless

Horizon	Description
Ap	0 to 9 inches. Dark brown (10YR 4/3) silt loam; weak fine and medium granular structure; friable; many fine roots; about 5 percent thin shale chips up to 1/2" long; pH 6.0; clear wavy boundary.
B21t	9 to 16 inches. Brown (7.5YR 5/4) light silty clay loam with many ped faces of brown (10YR 5/3); moderate fine subangular blocky structure; friable; common fine roots; about 5 percent fine shale chips; common clay films; pH 5.0; clear wavy boundary.
B22t	16 to 27 inches. Brown (7.5YR 5/4) silty clay loam; many medium and coarse mottles of yellowish red (5YR 5/6) and gray (10YR 6/1); friable to firm; slightly plastic and slightly sticky; moderate medium and fine subangular blocky structure; many gray (10YR 6/1) clay films and some vertical streaks; few roots; about 15 percent thin shale chips up to 1/2" long; pH 5.0; clear wavy boundary.
Bx	28 to 40 inches. Yellowish brown (10YR 5/4) shaly silty clay loam; many medium mottles and streaks of yellowish red (5YR 5/6) and gray (10YR 6/1); firm, slightly plastic and slightly sticky; weak coarse prisms breaking to weak medium platy and weak fine subangular blocky structure; 20 to 25 percent thin shale chips up to 1/2" long; many gray (10YR 6/1) clay films on ped faces and thick faces on prism exteriors; pH 5.2; gradual boundary.
Cx	40 to 70 inches. Yellowish brown (10YR 5/4) shaly light silty clay loam; many medium mottles and streaks of yellowish red (5YR 5/6) and gray (10YR 6/1); weak coarse prisms breaking to weak fine and medium subangular blocky structure; firm in place but friable broken out; 40 to 50 percent fine, somewhat weathered thin shale chips up to 1" long that increase in quantity with depth; pH 5.5; clear wavy boundary.
R	70 inches plus. Dark gray Marcellus shales.

CLARKSBURG SILT LOAM (66,01,C,b)

```
     WEIGHT  PERCENT  AND  VOLUME  PERCENT  OF  WATER  RETAINED

IDENTIFICATION        T E N S I O N S  (BARS)
                                                                 BD       TP        K
66   1   2   2     .1        .3        .6        3.        15.      G/CC     PCT     IN/HR

    DEPTH                                                              1
     0             30.58     27.95     24.86     21.87     9.15     1.41     46.79
                   43.11     39.40     35.05     30.83    12.90     1.48     44.15
                   FRAGMENT  25.53                 SIEVED  9.64ROCK PERCENT  6.53
                                                                       1
     9             22.95     20.43     18.78     17.75     9.03     1.66     37.36     .12
                   38.09     33.91     31.17     29.46    14.98     1.69     36.23     .07
                   FRAGMENT  19.76                 SIEVED  8.96ROCK PERCENT  4.58
                                                                       1
    16             25.35     20.77     19.11     16.82     9.70     1.61     39.25     .01
                   40.81     33.43     30.76     27.08    15.61     1.65     37.74     .20
                   FRAGMENT  21.56                 SIEVED  9.83ROCK PERCENT 14.59
                                                                       1
    28             18.02     15.85     15.70     15.41     9.57     1.72     35.09     .05
                   30.99     27.26     27.00     26.50    16.46     1.81     31.70     .03
                   FRAGMENT  14.94                 SIEVED  9.90ROCK PERCENT 20.15
                                                                       1
    40             19.99     14.70     16.66     14.68    10.99     1.75     33.96     .61
                   34.98     25.72     29.15     25.69    19.23     1.77     33.21     .58
                   FRAGMENT  13.96                 SIEVED 11.53ROCK PERCENT 25.43

        1=FIST
        2=CORE
        3=LOOSE
```

LITZ SHALY SILT LOAM (66,02,C,a and b)

Location: Moorefield Experimental Watershed #3
Vegetation and land use: Pasture
Topography: 8 percent slope, rolling uplands; pit b 12 percent slope.
Drainage: Somewhat excessively drained
Parent Material: Residual from Marcellus shales of Devonian Age
Described and sampled by: John Gorman, J. B. Burford, G. P. Lawless

Horizon	Description
Pit a	
Ap	0 to 7 inches. Dark brown (10YR 4/3) shaly silt loam; weak medium granular structure; very friable; many fine roots; about 20 to 25 percent by volume of fine shale chips mostly less than 1/2" long; pH 7.5; clear wavy boundary.
B2t	7 to 13 inches. Brown (7.5YR 5/4) shaly light silty clay loam; friable; weak to moderate medium subangular blocky structure; clay films in root holes and on some ped faces; roots are common; about 35 percent by volume of thin shale chips up to 1" long; pH 5.5; clear wavy boundary.
C	13 to 20 inches. Somewhat weathered fissle shales mostly 1/8 to 1/2" thick and up to 3" long. Vertical bedding planes are still quite evident; shales are mostly very dark gray with weathering faces of light gray (10YR 6/1); brown (7.5YR 5/4) and reddish brown (2.5YR 4/4); horizon contains about 15 to 30 percent brown (7.5YR 5/4) light silty clay loam in cracks, thin lenses and on shale faces; occasional flattened roots in shale cracks; pH 5.5; gradual irregular boundary.
R	20 to 27 inches plus. Hard, thin, somewhat broken dark gray and brownish fissle shales bedded almost vertically; upper portion contains up to 5 percent of fine material as in C horizon; shales are from the Marcellus formation of Devonian Age and unweathered strata may contain carbonates.
Pit b	
Ap	0 to 5 inches. Dark brown (10YR 4/3) shaly silt loam; weak fine and medium granular structure; very friable; many roots; about 30 percent thin shale chips mostly less than 1/2" long; pH 6.0; clear wavy boundary.
B2t	5 to 12 inches. Yellowish brown (10YR 5/4) shaly light silty clay loam; moderate fine and medium subangular blocky structure; friable; clay films in root holes and on few ped faces; common fine roots; about 45 percent by volume of thin shale chips mostly less than 1" long; pH 5.4; clear wavy boundary.
C	12 to 19 inches. Soft, partly weathered horizontally bedded fissle shales mostly less than 1" thick; shales are dark gray (7.5YR 4/4) with weathering rinds of strong brown (7.5YR 5/6) and reddish brown (5YR 4/4); horizon contains about 10 to 20 percent yellowish brown (10YR 5/4) heavy silt loam in cracks, on shale faces and in thin lenses and streaks; few roots; pH 5.4; gradual boundary.
R	19 to 27 inches plus. Firm, thin, horizontally bedded, somewhat fractured dark gray and black fissle shales; upper part contains a small amount of fine material as in C horizon. Shales are from Marcellus formation of Devonian Age and unweathered strata may contain carbonates.

LITZ SHALY SILT LOAM (66,02,C,a and b)

```
      WEIGHT  PERCENT  AND  VOLUME  PERCENT  OF  WATER  RETAINED

IDENTIFICATION        T E N S I O N S  (BARS)
                                                                   BD        TP        K
66    2    2    1      .1       .3       .6       3.       15.     G/CC      PCT     IN/HR

     DEPTH                                                          1
      0               20.43    16.66    18.00    15.38     8.00    1.67     36.98     3.53
                      34.11    27.82    30.06    25.68    13.36    1.74     34.34     1.91
                      FRAGMENT 15.58                SIEVED  9.41ROCK PERCENT 33.93
                                                                    1
      7               19.99    17.27    15.92    14.76     8.26    1.78     32.83    11.00
                      35.58    30.74    28.33    26.27    14.70    1.85     30.19     3.30
                      FRAGMENT 17.28                SIEVED  9.15ROCK PERCENT 35.77
                                                                    1
     13               16.42    15.42    14.28    13.56     8.84    1.04     60.75     1.57
                      17.07    16.03    14.85    14.10     9.19    1.07     59.62     1.05
                      FRAGMENT 15.64                SIEVED  8.71ROCK PERCENT 49.42
                                                                    3
     20               11.96    11.26    10.72     9.98     8.25    1.52     42.64
                      18.17    17.11    16.29    15.16    12.54
                      FRAGMENT                      SIEVED  9.31ROCK PERCENT 57.17

IDENTIFICATION        T E N S I O N S  (BARS)
                                                                   BD        TP        K
66    2    2    2      .1       .3       .6       3.       15.     G/CC      PCT     IN/HR

     DEPTH                                                          1
      0               27.77    22.62    23.88    19.19     9.52    1.54     41.89     3.60
                      42.76    34.83    36.77    29.55    14.66    1.64     38.11     4.08
                      FRAGMENT 13.46                SIEVED  9.33ROCK PERCENT 17.66
                                                                    1
      5               21.25    18.86    18.72    16.87     7.85    1.72     35.09      .13
                      36.55    32.43    32.19    29.01    13.50    1.78     32.83      .25
                      FRAGMENT 16.24                SIEVED  9.12ROCK PERCENT 31.68
                                                                    1
     12               13.38    10.69    10.55     9.74     7.73    1.05     60.38      .78
                      14.04    11.22    11.07    10.22     8.11    1.12     57.74      .40
                      FRAGMENT 10.67                SIEVED  8.49ROCK PERCENT 48.23
                                                                    3
     19               12.59    10.43     9.96     9.61     7.81    1.53     42.26
                      19.26    15.95    15.23    14.70    11.94
                      FRAGMENT                      SIEVED  8.92ROCK PERCENT 50.13

     1=FIST
     2=CORE
     3=LOOSE
```

CABOT VERY STONY SILT LOAM (67,01,P,a)

Location: Caledonia Co., Danville town, Tinkham farm, 1000' SW of buildings, 50' W of field.
Vegetation and land use: Trees and sedges
Topography: Level
Drainage: Poorly drained
Parent Material: Glacial till
Described and sampled by: W. J. Sheehan and G. P. Lawless

Horizon	Description
A1	0 to 9 inches. Black (N 2/) silt loam; weak medium granular; slightly sticky and slightly plastic; many grass and tree roots; pH 5.8; clear smooth boundary. 6 to 10 inches thick.
B2x	9 to 24 inches. Very dark gray (5Y 3/1) loam with few medium faint olive (5Y4/4) mottles; structureless; massive; firm; few grass and tree roots; estimated 5% by volume coarse fragments; pH 6.4; clear smooth boundary. 10 to 16 inches thick.
Cx	24 to 40 inches plus. Dark olive gray (5Y 3/2) loam or silt loam with many medium faint olive (5Y 4/4) mottles; structureless; massive; firm; no roots; estimated 5% by volume coarse fragments; pH 6.8.

CABOT VERY STONY SILT LOAM (67,01,P,a)

```
      WEIGHT  PERCENT  AND  VOLUME  PERCENT  OF  WATER  RETAINED

IDENTIFICATION        T E N S I O N S  (BARS)
                                                                    BD        TP        K
67   1   1   1      .1       .3       .6       3.       15.       G/CC      PCT     IN/HR

     DEPTH                                                            1
       9          19.72    15.69    13.74    10.50     8.18      1.68     36.60     1.69
                  33.12    26.35    23.08    17.64    13.74      1.73     34.72      .02
                  FRAGMENT 14.84                  SIEVED   9.54ROCK PERCENT 13.35

      1=FIST
      2=CORE
      3=LOOSE
```

CABOT SILT LOAM (67,01,C,a)

Location: Caledonia Co., Danville town, Tinkham farm, 1000' SW of buildings, 900' W of road.
Vegetation and land use: Hay land
Topography: Level
Drainage: Poorly drained
Parent Material: Glacial till
Described and sampled by: W. J. Sheehan and G. P. Lawless

Horizon	Description
Ap	0 to 7 inches. Black (10YR 2/1) silt loam; weak fine and medium granular structure; very friable; many grass roots; estimated 1% by volume coarse fragments; pH 6.2; abrupt smooth boundary. 5 to 8 inches thick.
B21x	7 to 19 inches. Dark gray (5Y 4/1) loam with many medium faint olive (5Y4/4) mottles; structureless; massive; firm; few grass roots; estimated 5% by volume coarse fragments; pH 6.4; clear wavy boundary. 6 to 14 inches thick.
Cx	19 to 50 inches plus. Very dark gray (5Y 3/1) silt loam with many medium and coarse faint olive brown (2.5Y 4/4) and olive (5Y 4/3) mottles; structureless; massive; firm; no roots; estimated 5% by volume coarse fragments; pH 6.6.

DANVILLE, VERMONT

CABOT SILT LOAM (67,01,C,a)

```
     WEIGHT  PERCENT  AND  VOLUME  PERCENT  OF  WATER  RETAINED

IDENTIFICATION        T E N S I O N S  (BARS)
                                                                  BD       TP        K
67   1   2   1     .1         .3         .6         3.         15.        G/CC     PCT      IN/HR

    DEPTH                                                          1
      7           18.61      16.66      14.61      10.41       7.45       1.62     38.87      .09
                  30.14      26.98      23.66      16.86      12.06       1.68     36.60      .05
                  FRAGMENT   15.20                   SIEVED    8.87ROCK  PERCENT   9.20
                                                                   1
     19           19.00      17.05      14.92      10.86       9.55       1.72     35.09      .10
                  32.68      29.32      25.66      18.67      16.42       1.80     32.08      .15
                  FRAGMENT   18.04                   SIEVED   11.05ROCK  PERCENT  10.90

      1=FIST
      2=CORE
      3=LOOSE
```

DANVILLE, VERMONT

CABOT SILT LOAM (67,01,C,b)

Location: Caledonia Co., Danville town, Horace Wheeler farm, 400' N of farm bldgs.
Vegetation and land use: Young white pine plantation; native grasses.
Topography: Rolling
Drainage: Poorly drained
Parent Material: Glacial till
Described and sampled by: W. J. Sheehan and G. P. Lawless

Horizon	Description
Ap	0 to 9 inches. Black (10YR 2/1) silt loam; moderate medium granular structure; very friable; many grass roots; pH 6.2; abrupt smooth boundary. 6 to 12 inches thick.
B21x	9 to 14 inches. Dark olive gray (5Y 3/2) loam with many medium distinct dark brown (7.5YR 3/2) and dark brown to brown (7.5YR 4/4) mottles; firm; common grass roots; estimated 5% by volume coarse fragments; pH 6.6; clear wavy boundary. 4 to 7 inches thick.
B22x	14 to 30 inches. Very dark gray (5Y 3/1) loam with many moderate distinct dark yellowish brown (10YR 4/4) mottles; structureless; massive; firm; few grass roots; estimated 5% by volume coarse fragments; pH 6.8; clear smooth boundary. 12 to 16 inches thick. The lower 4" of this horizon very high in decayed sandstone and limestone.
Cx	30 to 60 inches. Dark olive gray (5Y 3/2) silt loam with many fine faint very dark grayish brown (2.5Y 3/2) mottles; structureless; massive; firm; no roots; estimated 5% by volume coarse fragments; pH 7.0; horizon has many pockets 2 to 5 in. in diameter that are a loam.

DANVILLE, VERMONT

CABOT SILT LOAM (67,01,C,b)

```
     WEIGHT  PERCENT  AND  VOLUME  PERCENT  OF  WATER  RETAINED

IDENTIFICATION        T E N S I O N S  (BARS)
                                                                 BD        TP        K
67   1   2   2      .1        .3        .6        3.        15.      G/CC      PCT      IN/HR

    DEPTH                                                             1
     9             23.44     18.75     15.57     10.52      9.26     1.69     36.23      .56
                   39.61     31.68     26.31     17.77     15.64     1.74     34.34      .15
                   FRAGMENT  18.13                SIEVED  10.10ROCK  PERCENT  17.40
                                                                      1
     14            23.25     18.29     15.56     10.30      9.19     1.67     36.98      .14
                   38.82     30.54     25.98     17.20     15.34     1.73     34.72      .16
                   FRAGMENT  19.48                SIEVED   8.40ROCK  PERCENT  11.17
                                                                      1
     30            22.43     19.70     16.85     12.77      7.90     1.63     38.49      .27
                   36.56     32.11     27.46     20.81     12.87     1.67     36.98      .02
                   FRAGMENT  18.71                SIEVED   9.84ROCK  PERCENT  18.21

      1=FIST
      2=CORE
      3=LOOSE
```

CALAIS LOAM (67,03,P,a)

Location: Caledonia Co., Danville town, Horace Wheeler farm, half mile SE of house.
Vegetation and land use: Native grass
Topography: Undulating
Drainage: Well drained
Parent Material: Glacial till
Described and sampled by: W. J. Sheehan and G. P. Lawless

Horizon	Description
A1	0 to 4 inches. Black (10YR 2/1) loam; moderate fine granular structure; very friable; many grass roots; estimated 1% by volume coarse fragments; pH 6.2; abrupt smooth boundary. 3 to 5 inches thick.
B21	4 to 16 inches. Olive brown (2.5Y 4/4) loam; weak fine granular structure; very friable; common grass roots; estimated 1% by volume coarse fragments; pH 6.8; clear irregular boundary. 0 to 20 inches thick.
B22	16 to 42 inches. Dark grayish brown (2.5Y 4/2) loam; very weak fine granular structure or structureless; massive; friable; few grass roots; estimated 1% by volume coarse fragments; pH 6.2; clear wavy boundary. 10 to 22 inches thick.
C	42 to 55 inches. Olive (5Y 4/3) fine sandy loam with many fine distinct olive brown (2.5Y 4/4) mottles; structureless; massive; very friable; few roots; estimated 5% by volume coarse fragments; pH 5.8; estimated 10% by volume of decayed limestone and sandstone.
R	55 inches plus. Bedrock.

CALAIS LOAM (67,03,P,a)

WEIGHT PERCENT AND VOLUME PERCENT OF WATER RETAINED

IDENTIFICATION	TENSIONS (BARS)					BD	TP	K
67 3 1 1	.1	.3	.6	3.	15.	G/CC	PCT	IN/HR
DEPTH						1		
0	62.39	43.82	35.97	26.31	10.62	1.03	61.13	8.24
	64.26	45.13	37.04	27.09	10.93	1.15	56.60	2.14
	FRAGMENT	45.90		SIEVED	12.64ROCK	PERCENT	5.03	
						1		
4	42.65	26.02	22.43	18.69	13.76	1.28	51.70	6.85
	54.59	33.30	28.71	23.92	17.61	1.34	49.43	3.53
	FRAGMENT	24.55		SIEVED	15.55ROCK	PERCENT	.47	
						1		
16	29.50	21.15	17.43	10.16	7.46	1.26	52.45	2.97
	37.17	26.64	21.96	12.80	9.39	1.31	50.57	3.54
	FRAGMENT	20.38		SIEVED	9.15ROCK	PERCENT	4.87	
						1		
42	15.34	11.65	6.69	4.18	3.37	1.52	42.64	
	23.31	17.70	10.16	6.35	5.12	1.55	41.51	
	FRAGMENT	13.42		SIEVED	3.39ROCK	PERCENT	18.45	

1=FIST
2=CORE
3=LOOSE

CALAIS SILT LOAM (67,03,C,a)

Location: Caledonia Co., Danville town, Tinkham farm, 600' SW of old buildings.
Vegetation and land use: Hay land
Topography: Undulating
Drainage: Well-drained
Parent Material: Glacial till
Described and sampled by: W. J. Sheehan and G. P. Lawless

Horizon	Description
Ap	0 to 8 inches. Very dark brown (10YR 2/2) silt loam; strong fine granular structure; very friable; many grass roots; estimated 5% by volume coarse fragments; pH 6.8; abrupt smooth boundary. 7 to 8 inches thick.
B21	8 to 16 inches. Very dark grayish brown (2.5Y 3/2) silt loam; weak fine granular structure; friable; many grass roots; estimated 5% by volume coarse fragments; pH 6.4; clear smooth boundary. 7 to 8 inches thick.
B22	16 to 30 inches. Olive gray (5Y 4/2) silt loam; weak fine granular structure; friable; common grass roots; estimated 5% by volume coarse fragments; pH 6.0: clear smooth boundary. 13 to 16 inches thick.
Cx	30 to 68 inches. Dark olive gray (5Y 3/2) silt loam with few fine faint dark yellowish brown (10YR 4/4) mottles; structureless; massive; no roots; pH 5.8.

DANVILLE, VERMONT

CALAIS SILT LOAM (67,03,C,a)

```
      WEIGHT  PERCENT  AND  VOLUME  PERCENT  OF  WATER  RETAINED

IDENTIFICATION       T E N S I O N S  (BARS)
                                                                    BD        TP       K
67   3   2   1      .1        .3        .6        3.       15.     G/CC      PCT     IN/HR

     DEPTH                                                            1
       0            46.61     38.25     35.61     24.61     16.17     .86     67.55     5.70
                    40.08     32.89     30.62     21.16     13.90    1.02     61.51     3.68
                    FRAGMENT  39.60               SIEVED  10.70ROCK PERCENT  3.73
                                                          (16.89)     1
       8            32.99     27.63     23.38     17.56     10.86    1.10     58.49     1.43
                    36.28     30.39     25.71     19.31     11.94    1.16     56.23     2.52
                    FRAGMENT  26.89               SIEVED   6.95ROCK PERCENT 27.71
                                                          (10.95)     1
      16            28.15     26.39     23.62     18.88     12.50    1.37     48.30     3.95
                    38.56     36.15     32.35     25.86     17.12    1.43     46.04     5.67
                    FRAGMENT  26.22               SIEVED  17.55ROCK PERCENT 26.64
                                                                      1
      30            24.68     22.82     20.45     17.27     10.98    1.45     45.28      .80
                    35.78     33.08     29.65     25.04     15.92    1.53     42.26      .19
                    FRAGMENT  21.69               SIEVED  14.61ROCK PERCENT 36.63

      1=FIST
      2=CORE
      3=LOOSE
```

COLRAIN FINE SANDY LOAM (67,05,P,a)

Location: Caledonia Co., Danville town, Horace Wheeler farm, half mile SE of house.
Vegetation and land use: Native grass
Topography: Undulating
Drainage: Well drained
Parent Material: Glacial till
Described and sampled by: W. J. Sheehan and G. P. Lawless

Horizon	Description
Ap	0 to 5 inches. Dark grayish brown (2.5Y 4/2) fine sandy loam; weak fine granular structure; very friable; many grass roots; estimated 1% by volume coarse fragments; pH 5.8; abrupt smooth boundary. 4 to 6 inches thick.
B21	5 to 17 inches. Olive brown (2.5Y 4/4) fine sandy loam; weak fine granular structure; very friable; many grass roots; estimated 1% by volume coarse fragments; pH 6.0; clear wavy boundary. 4 to 15 inches thick.
B22	17 to 31 inches. Olive (5Y 4/3) fine sandy loam; structureless incisive; very friable; common grass roots; estimated 1% by volume coarse fragments; pH 6.2; clear wavy boundary. 6 to 15 inches thick.
C	31 to 46 inches. Horizon of decayed bedrock with equal amounts of very dark grayish brown (10YR 3/2) very dark brown (10YR 2/2) and dark yellowish brown (10YR 4/4) fine sand; structureless; massive; very friable; few grass roots; pH 6.4.
R	46 inches plus. Limestone bedrock.

DANVILLE, VERMONT

COLRAIN FINE SANDY LOAM (67,05,P,a)

```
      WEIGHT  PERCENT  AND  VOLUME  PERCENT  OF  WATER  RETAINED

IDENTIFICATION        T E N S I O N S  (BARS)
                                                                   BD       TP       K
67   5   1   1    .1       .3        .6        3.       15.       G/CC     PCT     IN/HR

     DEPTH                                                          1
      0           47.84    31.79     22.02     18.75    13.51      .89     66.42     6.89
                  42.57    28.29     19.59     16.68    12.02     1.04     60.75     6.12
                  FRAGMENT 30.54               SIEVED 18.14ROCK PERCENT 19.24
                                                                    1
      5           43.05    27.88     17.76     16.41     7.86     1.00     62.26     6.15
                  43.05    27.88     17.76     16.41     7.86     1.14     56.98     8.01
                  FRAGMENT 26.33               SIEVED  9.45ROCK PERCENT  9.31
                                                                    1
     17           35.40    26.38     15.46     14.55     5.59     1.21     54.34     6.80
                  42.83    31.91     18.70     17.60     6.76     1.31     50.57
                  FRAGMENT 27.27               SIEVED  8.88ROCK PERCENT 14.28
                                                                    3
     31           22.03    13.69      9.37      8.41     6.59     1.27     52.08     7.92
                  27.97    17.38     11.89     10.68     8.36                       10.64
                  FRAGMENT                     SIEVED  5.99ROCK PERCENT  7.56

      1=FIST
      2=CORE
      3=LOOSE
```

BUCKLAND VERY STONY SILT LOAM (67,10,P,a)

Location: Caledonia Co., Danville town, Tinkham farm, 600' W of buildings, 50' W of field.
Vegetation and land use: Trees and grass
Topography: Undulating
Drainage: Moderately well drained
Parent Material: Glacial till
Described and sampled by: W. J. Sheehan and G. P. Lawless

Horizon	Description
A1	0 to 4 inches. Very dark grayish brown (10YR 3/2) silt loam; moderate fine granular structure; very friable; many grass roots and tree roots; estimated 5% by volume coarse fragments; pH 5.6; abrupt smooth boundary. 3 to 6 inches thick.
B21	4 to 10 inches. Dark grayish brown (2.5Y 4/2) silt loam; weak fine granular structure; friable; many grass and tree roots; estimated 5% by volume coarse fragments; pH 5.8; clear wavy boundary. 4 to 8 inches thick.
B22	10 to 15 inches thick. Dark olive gray (5Y 3/2) loam; weak thin platy structure; friable; few grass and tree roots; estimated 5% by volume coarse fragments; pH 6.2; clear wavy boundary. 2 to 6 inches thick.
Cx	15 to 46 inches plus. Dark olive gray (5Y 3/2) loam with many moderate distinct dark yellowish brown (10YR 4/4) and olive brown (2.5Y 4/4) mottles; structureless; massive; firm; no roots; estimated 5% by volume coarse fragments; pH 6.4.

BUCKLAND VERY STONY SILT LOAM (67,10,P,a)

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     WEIGHT  PERCENT  AND  VOLUME  PERCENT  OF  WATER  RETAINED

IDENTIFICATION        T E N S I O N S  (BARS)
                                                                   BD        TP        K
67  10   1   1      .1        .3        .6        3.       15.       G/CC      PCT      IN/HR

    DEPTH                                                               1
     0              50.98     46.86     38.59     30.96     23.44      .81     69.43     1.22
                    41.29     37.95     31.25     25.07     18.98     1.04     60.75     1.50
                    FRAGMENT  44.31                  SIEVED 26.11ROCK PERCENT  6.23
                                                                        1
     4              51.72     45.30     39.32     30.59     10.14*     .94     64.53      .49
                    48.61     42.58     36.96     28.75      9.53     1.10     58.49      .18
                    FRAGMENT  45.25                  SIEVED 19.17ROCK PERCENT  7.29
                                                                        1
    15              22.56     18.11     16.66     12.14      9.22     1.65     37.74      .29
                    37.22     29.88     27.48     20.03     15.21     1.70     35.85      .34
                    FRAGMENT  16.18                  SIEVED 12.37ROCK PERCENT 12.71

                                                         *RERUN AS 21.22
     1=FIST
     2=CORE
     3=LOOSE
```

BUCKLAND SILT LOAM (67,10,C,a)

Location: Caledonia Co., Danville town, Tinkham farm, in field 900' W of road.
Vegetation and land use: Hay land
Topography: Level
Drainage: Moderately well drained
Parent Material: Glacial till
Described and sampled by: W. J. Sheehan and G. P. Lawless

Horizon	Description
Ap	0 to 9 inches. Very dark grayish brown (2.5Y 3/2) silt loam; moderate fine granular structure; very friable; many grass roots; estimated 1% by volume coarse fragments; pH 5.8; abrupt smooth boundary. 7 to 9 inches thick.
B21	9 to 15 inches. Dark olive gray (5Y 3/2) silt loam; weak fine granular structure; friable; common grass roots; estimated 5% by volume coarse fragments; pH 6.0; abrupt smooth boundary. 5 to 7 inches thick.
B22x	15 to 28 inches. Very dark gray (5Y 3/1) loam with many medium distinct very dark grayish brown (2.5Y 3/2) mottles; structureless; massive; firm; very few grass roots; estimated 5% by volume coarse fragments; pH 6.0; abrupt smooth boundary.
Cx	28 to 60 inches. Dark gray (5Y 4/1) silt loam with many coarse distinct very dark grayish brown (2.5Y 3/2) mottles; structureless; massive; firm; no grass roots; estimated 5% by volume coarse fragments; pH 6.6.

BUCKLAND SILT LOAM (67,10,C,a)

```
     WEIGHT  PERCENT  AND  VOLUME  PERCENT  OF  WATER  RETAINED

IDENTIFICATION        T E N S I O N S  (BARS)
                                                                 BD        TP        K
67  10   2   1     .1        .3        .6        3.        15.      G/CC      PCT     IN/HR

     DEPTH                                                          1
      0            54.77     46.99     43.10     30.71     13.89     .93      64.91     5.04
                   50.93     43.70     40.08     28.56     12.91    1.08      59.25      .86
                   FRAGMENT  45.62               SIEVED  14.89ROCK PERCENT  28.22
                                                                    1
      9            51.20     43.16     40.68     27.87     16.66    1.14      56.98      .78
                   58.36     49.20     46.37     31.77     18.99    1.24      53.21     2.24
                   FRAGMENT  45.74               SIEVED   7.09ROCK PERCENT  28.30
                                                         (26.97)    1
     15            21.48     18.03     16.80     12.66      8.88    1.64      38.11      .28
                   35.22     29.56     27.55     20.76     14.56    1.72      35.09      .42
                   FRAGMENT  17.61               SIEVED  11.74ROCK PERCENT  24.60
                                                                    1
     28            26.08     22.26     18.67     13.83      9.37    1.61      39.25      .05
                   41.98     35.83     30.05     22.26     15.08    1.68      36.60      .15
                   FRAGMENT  22.21               SIEVED  12.47ROCK PERCENT  22.78

      1=FIST
      2=CORE
      3=LOOSE
```

BUCKLAND LOAM (67,10,C,b)

Location: Caledonia Co., Danville town, Horace Wheeler farm, 300' W of house and 200' N of road.
Vegetation and land use: Young white pine and native grass.
Topography: Undulating
Drainage: Moderately well drained
Parent Material: Glacial till
Described and sampled by: W. J. Sheehan and G. P. Lawless

Horizon	Description
Ap	0 to 8 inches. Very dark grayish brown (2.5Y 3/2) loam; weak fine granular structure; very friable; many grass roots; estimated 1% by volume coarse fragments; pH 6.2; abrupt smooth boundary. 6 to 8 inches thick.
B21	8 to 14 inches thick. Olive brown (2.5Y 4/4) loam; weak fine granular structure; very friable; common grass roots; estimated 1% by volume coarse fragments; pH 6.0; clear smooth boundary. 4 to 7 inches thick.
B22x	14 to 21 inches. Dark olive gray (5Y 3/2) loam with common fine faint very dark grayish brown (2.5Y 3/2) and common fine distinct dark yellowish brown (10YR 4/4) mottles; structureless; massive; firm; few grass roots; estimated 1% by volume coarse fragments; pH 6.0; clear smooth boundary. 6 to 7 inches thick.
Cx	21 to 48 inches plus. Very dark gray (5Y 3/1) loam with many medium distinct dark yellowish brown (10YR 4/4) and olive brown (2.5Y 4/4) mottles; structureless; massive; firm; no roots; estimated 1% by volume coarse fragments; pH 6.2.

BUCKLAND LOAM (67,10,C,b)

```
      WEIGHT  PERCENT  AND  VOLUME  PERCENT  OF  WATER  RETAINED

IDENTIFICATION        T E N S I O N S  (BARS)
                                                                  BD       TP         K
67  10   2   2      .1        .3        .6        3.        15.     G/CC     PCT      IN/HR

     DEPTH                                                          1
      0           40.54     31.60     25.84     21.05     13.24      .82     69.06     1.65
                  33.24     25.91     21.18     17.26     10.85     1.00     62.26     1.85
                  FRAGMENT  30.78                 SIEVED  11.57ROCK PERCENT  1.04
                                                                    1
      8           38.94     31.86     26.40     22.51      5.96     1.20     54.72     1.20
                  46.72     38.23     31.68     27.01      7.15     1.29     51.32     1.73
                  FRAGMENT  30.73                 SIEVED   9.74ROCK PERCENT  9.72
                                                                    1
     14           25.95     18.77     15.20     10.93      6.60     1.62     38.87      .91
                  42.03     30.40     24.62     17.70     10.69     1.68     36.60     1.42
                  FRAGMENT  18.43                 SIEVED   5.89ROCK PERCENT 20.67
                                                                    1
     21           23.96     19.16     17.50     13.10      8.30     1.61     39.25      .18
                  38.57     30.84     28.17     21.09     13.36     1.68     36.60      .27
                  FRAGMENT  18.91                 SIEVED   7.94ROCK PERCENT 45.51

      1=FIST
      2=CORE
      3=LOOSE
```

UNNAMED FINE SANDY LOAM*(68,01,P,a)

Location: Reynolds Creek Watershed; N of main road.
Vegetation and land use: Range; shadscale.
Topography: Level
Drainage: Good
Parent Material: Basalt-granite mixture
Described and sampled by: T. A. Goettling and G. A. Schumaker

Horizon	Description
A1	0 to 1 inch. Granular fine sandy loam.
A2	1 to 7 inches. Fine sandy loam; weak to moderate platy breaking to weak very fine granular structure; many coarse to medium and few fine roots.
B2t	7 to 11 inches. Fine sandy clay loam; weak to moderate subangular blocky structure; plentiful coarse and medium roots, few fine roots.
B3t	11 to 15 inches. Light clay loam; weak subangular blocky breaking to moderate to strong granular structure.
C	15 to 21 inches. Massive fine sandy loam, gravelly; few fine roots.
C1ca	21 to 32 inches. Massive gravelly sandy loam.
C2ca	32 inches plus. Very fine loamy sand; massive.

*Correlated as Nannyton loam (1967).

BOISE, IDAHO

UNNAMED FINE SANDY LOAM (68,01,P,a)

WEIGHT PERCENT AND VOLUME PERCENT OF WATER RETAINED

IDENTIFICATION	TENSIONS (BARS)					BD	TP	K
68 1 1 1	.1	.3	.6	3.	15.	G/CC	PCT	IN/HR
DEPTH						1		
0	27.81	16.90	14.06	13.02	8.51	1.27	52.08	.06
	35.31	21.46	17.85	16.53	10.80	1.47	44.53	.10
	FRAGMENT	15.62		SIEVED	11.06ROCK	PERCENT	21.19	
						1		
1	25.00	18.88	14.72	14.36	10.12	1.41	46.79	0
	35.25	26.62	20.75	20.24	14.26	1.54	41.89	.04
	FRAGMENT	21.40		SIEVED	9.96ROCK	PERCENT	9.09	
						1		
7	32.70	25.97	24.16	23.77	20.25	1.22	53.96	.40
	39.89	31.68	29.47	28.99	24.70	1.36	48.68	.29
	FRAGMENT	26.39		SIEVED	22.16ROCK	PERCENT	28.32	
						1		
11	36.26	28.49	21.87	20.18	19.68	1.25	52.83	.54
	45.32	35.61	27.33	25.22	24.60	1.30	50.94	.58
	FRAGMENT	28.94		SIEVED	27.35ROCK	PERCENT	27.16	
						3		
15	36.77	30.51	26.38	23.85	22.90	1.20	54.72	
	44.12	36.61	31.65	28.62	27.48			
	FRAGMENT			SIEVED	30.10ROCK	PERCENT	36.36	
						3		
21	21.45	18.70	17.77	16.30	15.48	1.53	42.26	
	32.81	28.61	27.18	24.93	23.68			
	FRAGMENT			SIEVED	19.66ROCK	PERCENT	64.48	
					(29.51)	1		
32	31.36	21.70	15.38	14.15	12.09	1.18	55.47	.43
	37.00	25.60	18.14	16.69	14.26	1.25	52.83	1.39
	FRAGMENT	20.17		SIEVED	14.11ROCK	PERCENT	17.27	

1=FIST
2=CORE
3=LOOSE

UNNAMED GRAVELLY LOAM*(68,02,P,a)

Location: Sheep Creek Study Basin; 200 yds. E of weir.
Vegetation and land use: Range; lupin.
Topography: Alluvial fan
Drainage: Well drained
Parent Material: Alluvial or colluvial rhyolite
Described and sampled by: T. A. Goettling and D. Coon

Horizon	Description
A11[1]	0 to 1½ inch. Gravelly loam; weak to moderate platy breaking to weak very fine granular structure.
A12	1½ to 7 inches. Gravelly loam; weak very fine subangular blocky breaking to weak very fine granular structure; plentiful fine roots, abundant medium roots.
B1t	7 to 12 inches. Light clay loam; weak to moderate subangular blocky breaking to fine granular structure; weak to medium patchy clay films; few fine roots.
B12t	12 to 21 inches. Heavy clay loam; moderate to strong subangular blocky structure; medium to strong continuous clay films; very few roots.
B2t	21 to 27 inches. Silty clay loam; weak to moderate prismatic structure; medium to strong continuous clay films.
B3tca	27 inches plus. Gravelly clay loam; massive; medium to strong calcareous. Heavy concentration of cobble, could go no deeper.

[1] Surface is covered with leaves and algae, approx. 70%; gravel almost forms a pavement. Bleached sandgrains are common in first 1½ inches but not enough for an A2.

*Correlated as Searla extremely stony loam (1967).

UNNAMED GRAVELLY LOAM (68,02,P,a)

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        WEIGHT  PERCENT  AND  VOLUME  PERCENT  OF  WATER  RETAINED

IDENTIFICATION          T E N S I O N S  (BARS)
                                                                        BD        TP       K
68   2    1    1     .1        .3        .6        3.        15.       G/CC      PCT     IN/HR

     DEPTH                                                                 3
       0            36.07     23.30     18.22     15.38     12.35      1.26     52.45
                    45.44     29.35     22.95     19.37     15.56
                    FRAGMENT                        SIEVED 16.22ROCK PERCENT 75.37
                                                                           3
       2            30.88     19.42     16.54     14.88     11.57      1.24     53.21
                    38.29     24.08     20.50     18.45     14.34
                    FRAGMENT                        SIEVED 14.79ROCK PERCENT 59.44
                                                                           3
       7            27.41     19.45     18.34     16.10     13.14      1.19     55.09
                    32.61     23.14     21.82     19.15     15.63
                    FRAGMENT                        SIEVED 15.83ROCK PERCENT 38.53
                                                                           1
      12            27.32     21.38     19.89     18.61     16.08      1.11     58.11      .99
                    30.32     23.73     22.07     20.65     17.84      1.22     53.96      .98
                    FRAGMENT  20.43                 SIEVED 18.84ROCK PERCENT 49.12
                                                                           3
      21            37.49     28.80     27.71     25.90     24.69      1.07     59.62
                    40.11     30.81     29.64     27.71     26.41
                    FRAGMENT                        SIEVED 32.38ROCK PERCENT 72.16

        1=FIST
        2=CORE
        3=LOOSE
```

UNNAMED GRAVELLY LOAM*(68,03,P,a)

Location: Sheep Creek Study Basin; in tall sage SE of basin.
Vegetation and land use: Range; big sage.
Topography: Alluvial fan
Drainage: Well drained
Parent Material: Alluvium or colluvium from rhyolite
Described and sampled by: T. A. Goettling and D. Coon

Horizon	Description
A11	0 to 2½ inches. Gravelly loam; weak to moderate platy breaking to very fine granular structure.
A12	2½ to 6 inches. Gravelly heavy loam; moderate to strong platy breaking to fine granular structure; plentiful fine roots.
B11t	6 to 13 inches. Light clay loam; weak to moderate subangular blocky structure; plentiful fine roots; weak to medium patchy clay films.
B12t	13 to 22 inches. Gravelly clay loam; moderate to strong subangular blocky structure; few fine roots; weak to medium nearly continuous clay films.
B2t	22 to 34 inches. Gravelly silty clay loam; moderate to strong subangular blocky structure; few medium roots; medium nearly continuous clay films.
B3tca	34 to 40 inches. Gravelly light silty clay loam; weak to moderate subangular blocky structure; weak to medium patchy clay films; strongly calcareous; splotches of CaCo3 appear in root channels and under cobbles. Could go no deeper because of heavy concentration of cobbles.

*Correlated as Searla gravelly loam (1967).

UNNAMED GRAVELLY LOAM (68,03,P,a)

```
      WEIGHT  PERCENT  AND  VOLUME  PERCENT  OF  WATER  RETAINED

IDENTIFICATION        T E N S I O N S  (BARS)
                                                                 BD        TP        K
68   3   1   1     .1       .3       .6       3.       15.      G/CC      PCT     IN/HR

    DEPTH                                                           3
     0             29.86    22.88    21.91    14.34     9.36    1.38     47.92
                   41.20    31.57    30.23    19.78    12.91
                   FRAGMENT                   SIEVED  11.16ROCK PERCENT  35.92
                                                                    1
     2             30.04    19.69    18.69    15.85    12.00    1.20     54.72    2.57
                   36.04    23.62    22.42    19.02    14.40    1.34     49.43    1.72
                   FRAGMENT 21.88             SIEVED  18.30ROCK PERCENT  26.22
                                                                    1
     6             27.03    18.22    16.35    15.93    11.74    1.16     56.23    1.90
                   31.35    21.13    18.96    18.47    13.61    1.28     51.70    3.36
                   FRAGMENT 18.09             SIEVED  18.69ROCK PERCENT  39.10
                                                                    3
    13             25.52    21.55    20.17    16.11    14.87    1.29     51.32
                   32.92    27.79    26.01    20.78    19.18
                   FRAGMENT                   SIEVED  25.54ROCK PERCENT  54.88
                                                                    3
    22             26.31    21.35    20.18    19.44    15.20    1.20     54.72
                   31.57    25.62    24.21    23.32    18.24
                   FRAGMENT                   SIEVED  25.70ROCK PERCENT  53.20
                                                                    3
    34             27.39    24.88    23.59    21.57    16.83    1.30     50.94
                   35.60    32.34    30.66    28.04    21.87
                   FRAGMENT                   SIEVED  25.32ROCK PERCENT  34.37


      1=FIST
      2=CORE
      3=LOOSE
```

UNNAMED VERY GRAVELLY LOAM*(68,04,P,a)

Location: Sheep Creek Study Basin
Vegetation and land use: Range; arbustula sage.
Topography: Alluvial fan
Drainage: Well drained
Parent Material: Soil developed from alluvium or colluvium rhyolite.
Described and sampled by: T. A. Goettling and D. Coon

Horizon	Description
A11	0 to 4 inches. Very gravelly loam; weak very thin platy breaking to weak fine granular structure; abundant coarse to medium roots.
A22	4 to 8 inches. Gravelly loam; weak to moderate subangular blocky breaking to fine granular structure; abundant coarse to medium roots.
B1t	8 to 16 inches. Light clay loam; weak to moderate subangular blocky breaking to fine granular structure; thin patchy clay films; plentiful coarse to medium roots.
B2t	16 to 38 inches. Gravelly clay loam; weak to moderate subangular blocky structure; medium nearly continuous clay films; few fine roots.
B3tca	38 to 49 inches. Very gravelly clay loam; weak to moderate subangular blocky structure; weak nearly continuous clay films; few veins and coatings of CaCo3 on rocks, but soil is non-calcareous.
Cca	49 to 60 inches. Gravelly loam; massive; CaCo3 veins, splotches and coatings on rock fragments and in soil material.

*Correlated as Searla gravelly loam (1967).

UNNAMED VERY GRAVELLY LOAM (68,04,P,a)

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     WEIGHT  PERCENT  AND  VOLUME  PERCENT  OF  WATER  RETAINED

IDENTIFICATION         T E N S I O N S  (BARS)
                                                                  BD        TP       K
68   4   1   1     .1       .3       .6       3.       15.       G/CC      PCT     IN/HR

   DEPTH                                                            1

     0            19.99    19.47    18.13    13.65     8.76     1.20     54.72    4.58
                  23.98    23.36    21.75    16.38    10.51     1.27     52.08    2.32
                  FRAGMENT 16.37              SIEVED 14.35ROCK PERCENT 40.54
                                                                    1
     4            24.86    18.24    17.88    15.19    11.61     1.21     54.34     .91
                  30.08    22.07    21.63    18.37    14.04     1.27     52.08    1.10
                  FRAGMENT 16.64              SIEVED 18.11ROCK PERCENT 28.53
                                                                    1
     8            23.22    20.28    19.30    18.18    14.86     1.21     54.34    1.13
                  28.09    24.53    23.35    21.99    17.98     1.33     49.81    2.41
                  FRAGMENT 20.47              SIEVED 23.74ROCK PERCENT 33.99
                                                                    1
    16            28.40    26.52    24.24    18.09    15.41     1.33     49.81    1.12
                  37.77    35.27    32.23    24.05    20.49     1.43     46.04     .62
                  FRAGMENT 25.70              SIEVED 26.78ROCK PERCENT 46.25
                                                                    1
    38            24.22    21.92    18.96    16.66    13.89     1.09     58.87     .80
                  26.39    23.89    20.66    18.15    15.14     1.28     51.70     .99
                  FRAGMENT 24.65              SIEVED 19.02ROCK PERCENT 45.13

     1=FIST
     2=CORE
     3=LOOSE
```

PIERRE CLAY (72,01,P,a)

Location: Meade County; 1700' S and 330' E of NW cor., Sec. 4, T7N, R8E.
Vegetation and land use: Buffalograss and western wheatgrass
Topography: Gently rolling upland; 8 percent slopes facing N.
Drainage: Well drained; slow to very slow permeability; moderately rapid surface runoff.
Parent Material: Pierre Formation shale
Described and sampled by: P. R. Johnson and G. A. Schumaker

Horizon	Description
A11	0 to 3 inches. Grayish brown (2.5Y 5/2) clay, very dark to dark grayish brown (2.5Y 3.5/2) when moist and crushed color when moist; mulch breaking to weak very fine granular in upper inch, very weak fine and medium subangular blocky structure in lower part; soft when dry, firm when moist, very sticky and plastic when wet; mildly alkaline, pH 7.4; noncalcareous; clear smooth boundary.
A12	3 to 7 inches. Dark grayish brown to grayish brown (2.5Y 4.5/2) clay, dark grayish brown (2.5Y 4/2) when moist and crushed color when moist; very weak fine and medium subangular blocky structure; extremely hard when dry, very firm when moist, very sticky and very plastic when wet; moderately alkaline, pH 8.0; noncalcareous; clear wavy boundary.
B21	7 to 18 inches. Same color and texture as above; moderate medium and coarse angular blocky structure; extremely hard when dry, very firm when moist, very sticky and very plastic when wet; moderately alkaline, pH 8.4; noncalcareous.
B22	18 to 27 inches. Dark grayish brown to grayish brown (2.5Y 4.5/2) clay, dark grayish brown to olive brown (2.5Y 4/3) when moist and crushed color when moist; moderate medium and coarse angular blocky structure; extremely hard when dry, very firm when moist; very sticky and very plastic when wet; moderately alkaline, pH 8.4; noncalcareous; many nests of gypsum crystals in lower part; clear smooth boundary.
C&R	27 to 32 inches. Olive brown to light olive brown (2.5Y 4.5/4) and gray to brownish gray (2.5Y 5/1), olive brown (2.5Y 4/4) and dark gray to dark grayish brown (2.5Y 4/1) when moist; partially weathered shale interspersed with clay; extremely hard when dry, very firm when moist, very sticky and very plastic when wet; moderately alkaline, pH 8.2; noncalcareous; gradual boundary.
R	32 to 43 inches. Gray (5Y 5/1) and light olive gray (5Y 6/2), dark gray (5Y 4/1) and olive gray to olive (5Y 4/2.5) when moist; platy clay shale; moderately alkaline, pH 8.2; noncalcareous; many medium distinct light yellowish brown (2.5Y 6/4) stainings on shale fragments, light olive brown (2.5Y 5/4) when moist.

Remarks: Color for dry conditions unless noted otherwise.
Root Distribution: Primary 0-3", common 3-27".
A few iron-manganese concretions (mostly 1/8" in diameter) found in the upper 32 inches of profile.

NEWELL, SOUTH DAKOTA

PIERRE CLAY (72,01,P,a)

```
        WEIGHT  PERCENT  AND  VOLUME  PERCENT  OF  WATER  RETAINED

IDENTIFICATION           T E N S I O N S  (BARS)
                                                                        BD        TP       K
72    1   1    1     .1        .3        .6        3.        15.       G/CC      PCT     IN/HR

     DEPTH                                                                  1
        0           31.14     29.82     28.27     23.52     21.23      1.36     48.68     .08
                    42.35     40.55     38.44     31.98     28.87      1.77     33.21     .02
                    FRAGMENT  27.95                 SIEVED  21.17ROCK  PERCENT  33.89
                                                                            1
        3           35.64     34.69     33.48     29.76     24.02      1.29     51.32      0
                    45.97     44.75     43.18     38.39     30.98
                    FRAGMENT  33.70                 SIEVED  13.34ROCK  PERCENT  17.81
                                                           (28.95)          1
        7           34.61     33.63     32.59     25.72     21.81      1.43     46.04      0
                    49.49     48.09     46.60     36.77     31.18      1.94     26.79
                    FRAGMENT  32.74                 SIEVED  25.58ROCK  PERCENT  37.26
                                                                            1
       27           36.21     34.82     29.82     26.66     15.45      1.37     48.30      0
                    49.60     47.70     40.85     36.52     21.16      1.77     33.21
                    FRAGMENT  33.42                 SIEVED  24.39ROCK  PERCENT  25.14
                                                                            3
       32           34.73     30.93     28.68     23.18     23.36      1.08     59.25
                    37.50     33.40     30.97     25.03     25.22
                    FRAGMENT                        SIEVED  26.14ROCK  PERCENT  38.17

        1=FIST
        2=CORE
        3=LOOSE
```

PIERRE CLAY (72,01,P,b)

Location: Meade County; 2900' E and 750' S of NW cor., Sec. 5, T7N, R8E.
Vegetation and land use: Buffalograss and western wheatgrass
Topography: Gently rolling upland; 6 percent slopes facing NNE.
Drainage: Well drained; slow to very slow permeability; moderately rapid surface runoff.
Parent Material: Pierre Formation shale
Described and sampled by: P. R. Johnson and G. A. Schumaker

Horizon	Description
A11	0 to 2 inches. Grayish brown (2.5Y 5/2) clay, very dark to dark grayish brown (2.5Y 3.5/2) when moist and crushed color when moist; mulch breaking to weak very fine granular structure in upper inch, weak very fine granular in lower inch; slightly hard when dry, very firm when moist, very sticky and very plastic when wet; neutral, pH 7.2; noncalcareous; clear smooth boundary.
A12	2 to 8 inches. Grayish brown (2.5Y 5/2) clay, dark grayish brown (2.5Y 4/2) when moist and crushed color when moist; very weak medium and fine subangular blocky structure; extremely hard when dry, very firm when moist, very sticky and very plastic when wet; moderately alkaline, pH 8.0; noncalcareous; clear wavy boundary.
B21	8 to 16 inches. Same color and texture as above; moderate medium and coarse angular blocky structure; extremely hard when dry, very firm when moist, very sticky and very plastic when wet; moderately alkaline, pH 8.2; noncalcareous.
B22	16 to 23 inches. Same color, texture, structure, and consistence as above; moderately alkaline, pH 8.2; calcareous, few fine white (2.5Y 8/2) soft lime segregations; matrix is noncalcareous; clear wavy boundary.
C&R	23 to 27 inches. Dark gray to olive gray (5Y 4/1.5) clay, very dark grayish brown (2.5Y 3/2) when moist and crushed color when moist; massive with matrix about 50% weathered shale fragments; extremely hard when dry, very firm when moist; very sticky and very plastic when wet; moderately alkaline, pH 8.2; noncalcareous; discontinuous band of iron concretions 3 to 6 inches across and 2 to 3 inches thick at bottom of horizon; few medium distinct light olive brown (2.5Y 5/6) mottles; clear wavy boundary.
R	27 to 37 inches. Gray (5Y 6/1), very dark gray (5Y 3/1) when moist; medium platy clay shale grading to medium angular blocky shale in lower part; moderately alkaline, pH 8.2; noncalcareous; few fine prominent yellowish red (5YR 4/6) and yellowish brown (10YR 5/6) stainings on shale fragments, red (2.5YR 4/6) and dark yellowish brown (10YR 4/4) when moist.

Remarks: Colors are for dry conditions unless noted otherwise.
Root distribution: Primary 0-3", common 3-27".
A few iron-manganese concretions (1/8 inch in diameter) occur in the upper 27 inches of profile.

NEWELL, SOUTH DAKOTA

PIERRE CLAY (72,01,P,b)

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      WEIGHT  PERCENT  AND  VOLUME  PERCENT  OF  WATER  RETAINED

IDENTIFICATION        T E N S I O N S  (BARS)
                                                                 BD        TP        K
72   1   1   2     .1       .3       .6       3.       15.      G/CC      PCT     IN/HR

     DEPTH                                                          1
       2          37.14    34.76    32.05    29.26    25.45    1.32     50.19       0
                  49.02    45.88    42.30    38.62    33.59    1.84     30.57
                  FRAGMENT 32.83             SIEVED 22.39ROCK PERCENT 27.54
                                                                    1
       8          37.04    34.37    30.94    29.74    26.17    1.30     50.94       0
                  48.15    44.68    40.22    38.66    34.02    1.82     31.32
                  FRAGMENT 32.39             SIEVED 22.68ROCK PERCENT 16.79
                                                                    1
      23          35.06    33.00    31.17    29.13    29.79    1.27     52.08      .10
                  44.52    41.91    39.58    36.99    37.83    1.67     36.98      .07
                  FRAGMENT 32.85             SIEVED 23.79ROCK PERCENT 37.64
                                                    (34.68)         3
      27          32.98    31.84    30.96    28.74    28.63    1.28     51.70
                  42.21    40.75    39.62    36.78    36.64
                  FRAGMENT                   SIEVED 22.49ROCK PERCENT
                                                    (28.74)

      1=FIST
      2=CORE
      3=LOOSE
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LARB-LIKE SILTY CLAY LOAM (72,02,P,a)

Location: Butte County, 1800' W and 2200' N of SE cor., Sec. 7, T10N, R6E.
Vegetation and land use: Mostly barren; wild onions and few sparse prickly pear.
Topography: Swale in undulating to gently rolling upland, less than 1 percent slope.
Drainage: Well drained; very slow permeability; rapid surface runoff.
Parent Material: Colluvial-alluvial materials from Pierre Formation.
Described and sampled by: P. R. Johnson and G. A. Schumaker

Horizon	Description
A21	0 to 2 inches. Light brownish gray (2.5Y 6/2) silty clay loam, dark grayish brown (2.5Y 4/2) when moist, grayish brown (2.5Y 5/2) crushed color when moist; crust, weak fine platy in upper part and weak fine and medium angular blocky in lower part; hard when dry, firm when moist, sticky and plastic when wet; mildly alkaline, pH 7.6; noncalcareous; abrupt smooth boundary.
A22	2 to 7 inches. Light brownish gray to light yellowish brown (2.5Y 6/3) silty clay loam, dark grayish brown to grayish brown (2.5Y 4.5/2.5) when moist, dark grayish brown to grayish brown (2.5Y 4.5/2) crushed color when moist; weak medium subangular blocky breaking to weak fine granular structure; very hard when dry, friable when moist, sticky and plastic when wet; moderately alkaline, pH 8.2; noncalcareous; clear smooth boundary.
B2t	7 to 13 inches. Light brownish gray to light yellowish brown (2.5Y 6/3) silty clay, dark grayish brown to light olive brown (2.5Y 4.5/3) when moist and crushed color when moist; weak to moderate medium and fine angular blocky structure; very hard when dry, very firm when moist; very sticky and very plastic when wet; moderately alkaline, pH 8.4; calcareous; few fine nests of gypsum and salt; thin continuous clay films on vertical faces; clear irregular boundary.
IIC	13 to 18 inches. Black (5Y 2/1), pale olive (5Y 6/3) and light gray (5Y 7/1) clay, very dark gray (5Y 3/1), olive (5Y 5/3) and light gray (5Y 7/1) when moist, dark grayish brown (2.5Y 4/2) crushed color when moist; weak coarse and medium angular blocky structure, very hard when dry, very firm when moist, very sticky and very plastic when wet; moderately alkaline, pH 8.0; noncalcareous; many fine nests of gypsum and salts; clear wavy boundary.
C&R	18 to 32 inches. Gray (5Y 5/1), pale olive (5Y 6/3) and white (5Y 8/1) clay, very dark gray (5Y 3/1), pale olive (5Y 6/3) and pale yellow (5Y 7/3) when moist, dark gray (5Y 4/1) crushed color when moist; partially weathered platy shale interspersed with pockets of clay; very hard when dry, very firm when moist, very sticky and very plastic when wet; mildly alkaline, pH 7.6; noncalcareous; common medium nests of gypsum crystals; clear wavy boundary.
R1	32 to 40 inches. Light gray (5Y 7/1 and 7/2) fine platy clay shale, gray (5Y 5/1) and olive gray (5Y 5/2) when moist; mildly alkaline, pH 7.6; noncalcareous; few medium nests of gypsum crystals; many medium prominent reddish-brown (5YR 4/4) mottles when dry and moist; clear wavy boundary.
R2	40 to 57 inches. Reddish brown (5YR 4/4) exteriors, dark red-brown (5YR 3/4) when moist; light olive gray (5Y 6/2) interiors, dark olive gray (5Y 3/2) when moist; medium platy clay shale becoming angular blocky in lower part; neutral, pH 7.2; noncalcareous.

Remarks: Colors for dry conditions unless noted otherwise.

LARB-LIKE SILTY CLAY LOAM (72,02,P,a)

WEIGHT PERCENT AND VOLUME PERCENT OF WATER RETAINED

IDENTIFICATION	TENSIONS (BARS)							
						BD	TP	K
72 2 1 1	.1	.3	.6	3.	15.	G/CC	PCT	IN/HR
DEPTH						1		
0	34.10	28.91	25.12	21.25	20.04	1.34	49.43	.03
	45.69	38.73	33.66	28.47	26.85	1.59	40.00	.08
	FRAGMENT	25.91		SIEVED	24.99ROCK	PERCENT	42.97	
						1		
2	33.99	29.74	25.71	23.07	21.30	1.25	52.83	.38
	42.48	37.17	32.13	28.83	26.62	1.52	42.64	.54
	FRAGMENT	29.34		SIEVED	17.07ROCK	PERCENT		
					(21.25)	1		
7	33.49	28.60	26.02	23.22	21.59	1.33	49.81	.26
	44.54	38.03	34.60	30.88	28.71	1.66	37.36	.39
	FRAGMENT	26.50		SIEVED	22.04ROCK	PERCENT	.32	
						1		
13	33.33	29.95	25.11	25.89	24.79	1.35	49.06	.13
	44.99	40.43	33.89	34.95	33.46	1.72	35.09	.38
	FRAGMENT	28.09		SIEVED	22.90ROCK	PERCENT	7.47	
						1		
18	33.48	31.01	27.52	27.18	21.32	1.29	51.32	.08
	43.18	40.00	35.50	35.06	27.50	1.75	33.96	.05
	FRAGMENT	32.53		SIEVED	24.00ROCK	PERCENT	5.07	
						3		
32	35.26	31.78	28.74	26.88	22.51	1.11	58.11	
	39.13	35.27	31.90	29.83	24.98			
	FRAGMENT			SIEVED	25.00ROCK	PERCENT	20.00	
						3		
40	36.26	33.70	31.28	29.34	24.78	1.19	55.09	
	43.14	40.10	37.22	34.91	29.48			
	FRAGMENT			SIEVED	26.80ROCK	PERCENT	40.37	

1=FIST
2=CORE
3=LOOSE

LARB-LIKE SILTY CLAY LOAM (72,02,P,b)

Location: Butte County, 1600' S and 1880' E of NW cor., Sec. 22, T11N, R5E.
Vegetation and land use: Very sparse western wheatgrass and wild onions (mostly barren).
Topography: Nearly level upland swale in undulating to gently rolling upland, less than 1 percent slope.
Drainage: Well drained; very slow permeability; very rapid surface runoff.
Parent Material: Colluvial-alluvial materials from Pierre Formation.
Described and sampled by: P. R. Johnson and G. A. Schumaker

Horizon	Description
A21	0 to 1 inch. Light gray (2.5Y 7/2) silty clay loam, grayish brown (2.5Y 5/2) when moist and crushed color when moist; weak fine platy crust; hard when dry, firm when moist, very sticky and plastic when wet; mildly alkaline, pH 7.6; noncalcareous; abrupt smooth boundary.
A22	1 to 7 inches. Grayish brown to light brownish gray (2.5Y 5.5/2) silty clay loam, dark grayish brown (2.5Y 4/2) when moist and crushed color when moist; weak medium and fine angular blocky structure; very hard when dry, firm when moist; very sticky and very plastic when wet; mildly alkaline, pH 7.8; noncalcareous; clear wavy boundary.
B2t	7 to 16 inches. Grayish brown to light brownish gray (2.5Y 5.5/2) silty clay, dark grayish brown (2.5Y 4/2) when moist and crushed color when moist; weak medium and coarse angular blocky structure; extremely hard when dry, very firm when moist, very sticky and very plastic when wet; moderately alkaline, pH 8.2; noncalcareous; many fine spots of salts; thin continuous clay films on vertical and horizontal faces; clear wavy boundary.
IIC1	16 to 23 inches. Same color as above; clay; massive, 20% of matrix consists of fine platy shale fragments; extremely hard when dry, very firm when moist, very sticky and very plastic when wet; moderately alkaline, pH 8.2; noncalcareous; many fine spots and nests of salt and gypsum; clear wavy boundary.
C&R	23 to 33 inches. Gray (5Y 5/1) and light olive brown (2.5Y 5/4) clay, very dark gray (5Y 3/1) and olive brown (2.5Y 4/4) when moist, dark grayish brown (2.5Y 4/2) crushed color when moist; partially weathered fine platy shale interspersed with pockets of clay; very hard when dry, very firm when moist, very sticky and very plastic when wet; mildly alkaline, pH 7.8; noncalcareous, many fine nests of gypsum; many medium and coarse prominent yellowish brown (10YR 5/6) mottles; clear wavy boundary.
R1	33 to 41 inches. Light olive brown (2.5Y 5/4) and gray (5Y 5/1) partially weathered fine platy clay shale, olive brown (2.5Y 4/4) and very dark gray (5Y 3/1) when moist; mildly alkaline, pH 7.4; noncalcareous; many coarse prominent yellowish brown (10YR 5/6) mottles, yellowish brown (10YR 5/8) when moist; gradual wavy boundary.
R2	41 to 50 inches. Yellowish red (5YR 4/6) exteriors, reddish brown (5YR 4/4) when moist; gray (5Y 5/1) interiors, very dark gray (5Y 3/1) when moist; fine and medium angular blocky clay shale; mildly alkaline, pH 7.4; noncalcareous.

Remarks: Colors for dry conditions unless noted otherwise.
Root Distribution: Primary 0-7", few 7-15".
Small (1/8 to 1/4 inch in diameter) iron-manganese concretions scattered on surface and found in upper 16 inches of profile.

LARB-LIKE SILTY CLAY LOAM (72,02,P,b)

WEIGHT PERCENT AND VOLUME PERCENT OF WATER RETAINED

IDENTIFICATION	TENSIONS (BARS)							
72 2 1 2	.1	.3	.6	3.	15.	BD G/CC	TP PCT	K IN/HR
DEPTH						1		
0	27.27	24.22	20.86	19.60	14.37	1.39	47.55	.12
	37.90	33.66	28.99	27.24	19.97	1.65	37.74	.08
	FRAGMENT	25.01		SIEVED	16.81	ROCK PERCENT	16.54	
						1		
7	32.95	27.23	25.33	20.98	18.62	1.44	45.66	.37
	47.44	39.21	36.47	30.21	26.81	1.75	33.96	.23
	FRAGMENT	25.16		SIEVED	18.67	ROCK PERCENT		
						1		
16	33.55	28.76	27.10	23.56	20.72	1.27	52.08	.16
	42.60	36.52	34.41	29.92	26.31	1.63	38.49	1.53
	FRAGMENT	29.75		SIEVED	20.79	ROCK PERCENT	6.42	
						1		
23	37.29	33.52	32.08	29.26	23.56	1.12	57.74	0
	41.76	37.54	35.92	32.77	26.38	1.67	36.98	.13
	FRAGMENT	32.23		SIEVED	23.65	ROCK PERCENT	29.74	
						3		
33	38.60	34.56	33.14	29.09	22.24	1.09	58.87	
	42.07	37.67	36.12	31.70	24.24			
	FRAGMENT			SIEVED	26.47	ROCK PERCENT	58.40	
						3		
41	36.89	34.02	32.22	29.29	22.93	1.13	57.36	
	41.68	38.44	36.40	33.09	25.91			
	FRAGMENT			SIEVED	27.63	ROCK PERCENT	46.58	

1=FIST
2=CORE
3=LOOSE

BASCOM-LIKE CLAY (72,03,P,a)

Location: Butte County, 2400' E and 1300' S of NW cor., Sec. 7, T10N, R6E.
Vegetation and land use: Western wheatgrass, wild onion, prickly pear.
Topography: Gently sloping, 3 percent slopes facing N.
Drainage: Well drained; very slow permeability; moderately rapid surface runoff.
Parent Material: Pierre Formation shale
Described and sampled by: P. R. Johnson and G. A. Schumaker

Horizon	Description
A1	0 to 6 inches. Grayish brown to light grayish brown (2.5Y 5.5/2) clay, dark grayish brown to grayish brown (2.5Y 4.5/2) when moist and crushed color when moist; crust breaking to weak fine angular blocky structure in upper 1/2", moderate fine granular structure in lower part; slightly hard when dry, very firm when moist; very sticky and very plastic when wet; moderately alkaline, pH 8.2; noncalcareous; clear wavy boundary.
B2	6 to 20 inches. Grayish brown (2.5Y 5/2) clay, dark grayish brown (2.5Y 4/2) when moist and crushed color when moist; strong coarse angular blocky breaking to weak medium angular blocky structure; extremely hard when dry, very firm when moist, very sticky and very plastic when wet; moderately alkaline, pH 8.4; calcareous, few medium white (N8/0) soft lime segregations; many fine light gray (5Y 7/2) salt segregations; prominent pressure faces; gradual wavy boundary.
C&R	20 to 32 inches. Gray to grayish brown (2.5Y 5/1), dark gray (N 4/0) when moist; partially weathered clay shale interspersed with pockets of clay; very hard when dry, very firm when moist, very sticky and very plastic when wet; strongly alkaline, pH 8.6; noncalcareous; common medium light gray (5Y 7/2) salt segregations; reddish brown (5Y 4/4) iron stainings on shale fragments, dark reddish brown (5YR 3/4) when moist; few large (6 in. and more in diameter) hard iron concretions; clear wavy boundary.
R1	32 to 45 inches. Light gray (2.5Y 7/2) with strong brown (7.5YR 5/6) and dark brown (7.5YR 4/4) iron staining on faces; grayish brown (2.5Y 5/2) with dark brown (7.5YR 4/4) and (7.5YR 3/2) iron stainings on faces when moist; fine and medium angular blocky clay shale with fragments becoming coarser in lower part; mildly alkaline, pH 7.8; noncalcareous; many gypsum crystals on fracture faces; gradual wavy boundary.
R2	45 to 54 inches. Gray to olive gray (5Y 5/1.5) and light gray (5Y 7/2) with few fragments with olive gray (5Y 4/2) interiors; olive gray (5Y 4/2 and 5/2) with few fragments of dark olive gray (5Y 3/2) interiors; medium and coarse angular blocky clay shale; neutral, pH 6.8; noncalcareous; dark reddish brown (5YR 3/3) iron staining on most fracture faces, dark reddish brown (2.5YR 3/4) when moist; many gypsum crystals on fracture faces.

Remarks: Color for dry conditions unless noted otherwise.
Root Distribution: Primary 0-6", common 6-26", few 26-32".
Few small iron concretions scattered on surface.

BASCOM-LIKE CLAY (72,03,P,a)

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      WEIGHT  PERCENT  AND  VOLUME  PERCENT  OF  WATER  RETAINED

IDENTIFICATION        T E N S I O N S  (BARS)
                                                                       BD         TP         K
72   3    1    1      .1        .3        .6        3.        15.      G/CC       PCT      IN/HR

     DEPTH                                                               1
      0              34.17     30.47     29.79     26.31     25.71     1.32      50.19       .08
                     45.10     40.22     39.32     34.72     33.93     1.77      33.21       0
                     FRAGMENT  30.74                SIEVED 25.19ROCK PERCENT   8.43
                                                                         1
      6              33.99     30.35     28.85     26.35     19.73     1.39      47.55       .06
                     47.24     42.18     40.10     36.62     27.42     1.78      32.83       0
                     FRAGMENT  28.60                SIEVED 21.66ROCK PERCENT   2.41
                                                                         1
     20              37.82     33.33     31.60     28.41     20.35     1.24      53.21       0
                     46.89     41.32     39.18     35.22     25.23     1.76      33.58       .12
                     FRAGMENT  35.79                SIEVED 23.16ROCK PERCENT  31.91
                                                                         3
     32              36.12     33.57     31.36     31.34     26.63     1.18      55.47
                     42.62     39.61     37.00     36.98     31.42
                     FRAGMENT                       SIEVED 26.84ROCK PERCENT  53.84
                                                                         3
     45              28.68     27.63     26.67     26.16     24.75     1.15      56.60
                     32.98     31.77     30.67     30.08     28.46
                     FRAGMENT                       SIEVED 30.98ROCK PERCENT  54.33

      1=FIST
      2=CORE
      3=LOOSE
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BASCOM-LIKE CLAY (72,03,P,b)

Location: Butte County, 500' S and 50' E of NW cor., Sec. 27, T11N, R5E.
Vegetation and land use: Primarily western wheatgrass, some prickly pear.
Topography: Undulating to gently rolling upland, 3½ percent slopes, N facing.
Drainage: Well drained; Very slow permeability; moderately rapid surface runoff.
Parent Material: Pierre Formation shale
Described and sampled by: P. R. Johnson and G. A. Schumaker

Horizon	Description
A1	0 to 5 inches. Grayish brown (2.5Y 5/2) clay; dark grayish brown (2.5Y 4/2) when moist and crushed color when moist; crust in upper 1/8 inch, mulch 1/8 to 1 inch, very weak medium subangular blocky structure 1 to 4 inches; slightly hard when dry, very firm when moist, very sticky and very plastic when wet; strongly alkaline; pH 8.5; noncalcareous; clear wavy boundary.
B2	5 to 15 inches. Dark grayish brown to grayish brown (2.5Y 4.5/2) clay, dark grayish brown (2.5Y 4/2) when moist and crushed color when moist; strong coarse angular blocky breaking to weak medium angular blocky structure; extremely hard when dry, extremely firm when moist, very sticky and very plastic when wet; strongly alkaline, pH 8.7; noncalcareous; many fine distinct light gray (5Y 7/2) streaks and nests of salt segregations in lower 6 in.; prominent pressure faces; gradual wavy boundary.
C&R	15 to 22 inches. Gray (5Y 5.5/1) clay; black to very dark gray (5Y 2.5/1) when moist and crushed color when moist; massive with approximately 30% of matrix consisting of fine shale fragments; extremely hard when dry, extremely firm when moist, very sticky and very plastic when wet; moderately alkaline, pH 8.4; noncalcareous; many fine distinct light gray (5Y 7/2) streaks and nests of salt segregations; few nests of gypsum crystals; few hard iron concretions in lower part; clear wavy boundary.
R1	22 to 30 inches. Gray (5Y 5/1),black to very dark gray (5Y 2.5/1) when moist, fine platy clay shale; moderately alkaline, pH 8.4; noncalcareous; common medium distinct light gray (5Y 7/2) salt segregations; few nests of gypsum crystals; bentonite seam (½" thick) at top of horizon; clear wavy boundary.
R2	30 to 42 inches. Yellowish brown (10YR 5/6) and strong brown (7.5YR 5/6) exterior and dark gray (5Y 4/1) and olive gray (5Y 5/2) interiors; dark brown (7.5YR 4/4) exteriors and black (5Y 2/1), very dark gray (5Y 3/1) and olive gray (5Y 4/2) interiors when moist; fine and medium angular blocky clay shale; moderately alkaline, pH 8.0; noncalcareous; few nests of gypsum crystals.

Remarks: Colors for dry conditions unless noted otherwise.
Root Distribution: Primary 0-5", common 5-22", few 22-30".
Many iron concretions (1/8" to 2" in diameter) scattered on surface.

NEWELL, SOUTH DAKOTA

BASCOM-LIKE CLAY (72,03,P,b)

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      WEIGHT  PERCENT  AND  VOLUME  PERCENT  OF  WATER  RETAINED

IDENTIFICATION        T E N S I O N S  (BARS)
                                                               BD        TP        K
72   3   1   2     .1        .3        .6        3.        15.        G/CC      PCT      IN/HR

     DEPTH                                                              1
      0          34.92     30.39     29.17     26.60     25.63      1.26     52.45       0
                 43.99     38.29     36.75     33.51     32.29      1.79     32.45      .21
                 FRAGMENT  29.14                  SIEVED 23.34ROCK PERCENT 15.14
                                                                        1
      5          42.52     37.88     35.29     30.10     26.15      1.12     57.74       0
                 47.62     42.42     39.52     33.71     29.28      1.87     29.43
                 FRAGMENT  36.65                  SIEVED 24.07ROCK PERCENT  8.52
                                                                        1
     15          48.90     43.06     40.54     36.21     26.74      1.11     58.11       0
                 54.27     47.79     44.99     40.19     29.68      1.74     34.34
                 FRAGMENT  42.21                  SIEVED 26.13ROCK PERCENT
                                                                        1
     22          42.02     38.54     35.92     32.48     31.31      1.14     56.98
                 47.90     43.93     40.94     37.02     35.69      1.71     35.47
                 FRAGMENT  37.97                  SIEVED 26.46ROCK PERCENT 41.48
                                                        (32.73)         3
     30          36.03     33.48     31.49     30.37     25.66      1.20     54.72
                 43.23     40.17     37.78     36.44     30.79
                 FRAGMENT                         SIEVED 30.37ROCK PERCENT 46.80

      1=FIST
      2=CORE
      3=LOOSE
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LISMAS CLAY (72,04,P,a)

Location: Butte County, 2300' W and 300' S of NE cor., Sec. 7, T10N, R6E.
Vegetation and land use: Sparse western wheatgrass
Topography: Sloping to steep slopes breaking into small drainageway, 9½ percent slope, NW facing.
Drainage: Excessive; slow to very slow permeability; rapid surface runoff.
Parent Material: Pierre Formation shale
Described and sampled by: P. R. Johnson and G. A. Schumaker

Horizon	Description
A1	0 to 5 inches. Grayish brown to light grayish brown (2.5Y 5.5/2) clay, dark grayish brown to grayish brown (2.5Y 4.5/2) when moist and crushed color when moist; very fine mulch in upper 1", weak very fine granular structure in lower part; soft when dry, very firm when moist; very sticky and very plastic when wet; moderately alkaline, pH 8.1; noncalcareous; few medium prominent yellowish brown (10YR 5/6) mottles; clear smooth boundary.
R&C	5 to 8 inches. Olive gray (5Y 5/2) and light olive brown (2.5Y 5/4) clay; dark gray to olive gray (5Y 4/1.5) and dark grayish brown to olive brown (2.5Y 4/3) when moist, grayish brown to light olive brown (2.5Y 5/3) crushed color when moist; fine platy shale interspersed with pockets of clay; hard when dry, very firm when moist, very sticky and very plastic when wet; moderately alkaline, pH 8.1; calcareous, weak effervescence in seams and soft segregations; many fine and medium distinct white (N8/0) salt segregations; gradual boundary.
R1	8 to 20 inches. Light olive gray (5Y 6/2), dark olive gray to olive gray (5Y 3.5/1) when moist; medium platy clay shale; strongly alkaline, pH 8.6; noncalcareous; yellowish brown (10YR 5/6) staining along cracks and on shale plates, yellowish brown (10YR 5/4) when moist; common fine salt segregations in upper part; gradual boundary.
R2	20 to 30 inches. Light brownish gray (2.5Y 6/2), dark grayish brown to grayish brown (2.5Y 4.5/2) when moist, medium angular blocky clay shale; moderately alkaline, pH 8.0; noncalcareous; yellowish brown (10YR 5/6) staining along cracks, yellowish brown (10YR 5/4) when moist; few gray (N5/0) stainings on some shale faces; gypsum crystals 1/4" long oriented in vertical position in upper part.

Remarks: All colors are for dry conditions unless noted otherwise.
Root Distribution: Primary 0-5", few to 20".
Many iron concretions 1/8" to 1" in diameter scattered on surface.

LISMAS CLAY (72,04,P,a)

```
     WEIGHT  PERCENT  AND  VOLUME  PERCENT  OF  WATER  RETAINED

IDENTIFICATION        T E N S I O N S  (BARS)
                                                                   BD       TP       K
72   4   1   1     .1        .3        .6        3.        15.      G/CC     PCT    IN/HR

     DEPTH                                                          1
      0            32.99     31.13     27.14     25.88     22.38     1.37    48.30     .53
                   45.19     42.64     37.18     35.45     30.66     1.76    33.58     .07
                   FRAGMENT  30.16                 SIEVED  20.30ROCK PERCENT  7.64
                                                                    1
      5            31.73     29.94     27.77     26.81     24.16     1.19    55.09    1.87
                   37.75     35.62     33.04     31.90     28.75     1.64    38.11     .22
                   FRAGMENT  31.88                 SIEVED  20.26ROCK PERCENT 27.23
                                                                    1
      8            34.33     33.33     29.35     28.95     22.38     1.24    53.21     .56
                   42.56     41.32     36.39     35.89     27.75     1.66    37.36     .37
                   FRAGMENT  32.40                 SIEVED  24.00ROCK PERCENT 32.62
                                                                    3
     20            33.94     31.74     29.85     29.70     28.75     1.09    58.87
                   36.99     34.59     32.53     32.37     31.33
                   FRAGMENT                        SIEVED  27.63ROCK PERCENT 58.37

     1=FIST
     2=CORE
     3=LOOSE
```

LISMAS CLAY (72,04,P,b)

Location: Butte County, 480' W and 2200' S of NE corner, Sec. 9, T10N, R6E.
Vegetation and land use: Sparse western wheatgrass.
Topography: Strongly sloping, breaks into drainageway; 11% slopes, SW facing.
Drainage: Excessive; Slow to very slow permeability; excessive runoff.
Parent Material: Pierre Formation shale
Described and sampled by: P. R. Johnson and G. A. Schumaker

Horizon	Description
A1	0 to 4 inches. Grayish brown (2.5Y 5/2) clay, dark grayish brown (2.5Y 4/2) when moist and crushed color when moist; fine mulch in upper 1", weak very fine granular structure in lower part; soft when dry, very firm when moist, very sticky and very plastic when wet; moderately alkaline, pH 8.0; noncalcareous; clear wavy boundary.
AC	4 to 8 inches. Grayish brown (2.5Y 5/2) clay, dark grayish brown (2.5Y 4/2) when moist and crushed color when moist; very weak medium subangular blocky structure, massive when wet; very hard when dry, very firm when moist, very sticky and very plastic when wet; moderately alkaline, pH 8.0; noncalcareous; clear wavy boundary.
R&C	8 to 14 inches. Grayish brown (2.5Y 5/2), very dark grayish brown to grayish brown (2.5Y 3.5/2) when moist and crushed color when moist, partially weathered fine platy clay shale interspersed with pockets of clay; very hard when dry, very firm when moist, very sticky and very plastic when wet; moderately alkaline, pH 8.2; many nests and stringers of salt segregations and gypsum on shale fragments; clear wavy boundary.
R1	14 to 28 inches. Gray (5Y 5/1), very dark gray (5Y 3/1) when moist, platy clay shale in upper part grading to medium angular blocky clay shale in lower part; moderately alkaline, pH 8.4; noncalcareous; many nests and stringers of salt segregations and gypsum in upper part on shale fragments; some nests of fibrous gypsum crystals between shale layers in lower part; few large (8" and larger in diam.) hard iron concretions; gradual irregular boundary.
R2	28 to 39 inches. Pale yellow (5Y 7/3), light olive brown (2.5Y 5/4) when moist, medium and coarse angular blocky clay shale; moderately alkaline, pH 8.1; noncalcareous; common medium distinct gray (5Y 5.5/1) mottles, dark olive gray (5Y 3/2) when moist, yellowish brown (10YR 5/6) and strong brown (7.5YR 5/6) staining on shale fragments; few large (8" and larger in diam.) hard iron concretions.

Remarks: Colors for dry conditions unless noted otherwise.
Root Distribution: Primary 0-4", common 4-20".
Iron concretions (1/8" to 5" in diam.) scattered on surface.

NEWELL, SOUTH DAKOTA

LISMAS CLAY (72,04,P,b)

```
     WEIGHT  PERCENT  AND  VOLUME  PERCENT  OF  WATER  RETAINED

IDENTIFICATION        T E N S I O N S  (BARS)
                                                                 BD       TP       K
72   4   1   2      .1        .3        .6        3.        15.       G/CC     PCT     IN/HR

     DEPTH                                                          3
       0          32.59     29.14     28.52     26.17     21.08     1.00     62.26
                  32.59     29.14     28.52     26.17     21.08
                  FRAGMENT                         SIEVED 19.82ROCK PERCENT 12.05
                                                                    1
       4          35.82     32.82     29.75     27.74     23.22     1.29     51.32      .06
                  46.20     42.33     38.37     35.78     29.95     1.80     32.08      .07
                  FRAGMENT 31.35                   SIEVED 24.60ROCK PERCENT   .51
                                                                    1
       8          34.87     31.88     29.77     28.07     24.11     1.33     49.81      .17
                  46.37     42.40     39.59     37.33     32.06     1.73     34.72      .33
                  FRAGMENT 30.66                   SIEVED 20.55ROCK PERCENT 22.29
                                                                    3
      14          34.12     33.75     31.32     29.01     25.34     1.12     57.74
                  38.21     37.80     35.07     32.49     28.38
                  FRAGMENT                         SIEVED 23.79ROCK PERCENT 69.10
                                                                    3
      28          34.21     30.68     28.67     27.96     27.17     1.11     58.11
                  37.97     34.05     31.82     31.03     30.15
                  FRAGMENT                         SIEVED 24.32ROCK PERCENT 56.32

       1=FIST
       2=CORE
       3=LOOSE
```

MORTON LOAM (72,05,P,a)

Location: Butte County, 1400' S and 700' W of NE corner, Sec. 29, T14N, R6E.
Vegetation and land use: Blue grama, needleandthread, cacti.
Topography: Toeslope in gently rolling upland, 3% slope, N facing.
Drainage: Well drained; moderate permeability; medium surface runoff.
Parent Material: Fox Hill Formation silty, sandy, and clayey materials.
Described and sampled by: P. R. Johnson and G. A. Schumaker

Horizon	Description
A1	0 to 6 inches. Grayish brown (2.5Y 5/2) loam, very dark brown to grayish brown (10YR 2.5/2) when moist, very dark grayish brown (10YR 3/2) crushed color when moist; weak fine granular structure; soft when dry, friable when moist, nonsticky and slightly plastic when wet; mildly alkaline, pH 7.8; noncalcareous; clear smooth boundary.
B2t	6 to 17 inches. Grayish brown (2.5Y 5/2) light clay loam, very dark grayish brown (2.5Y 3/2) when moist, dark grayish brown (2.5Y 4/2) crushed color when moist; weak medium prismatic breaking to moderate medium subangular and angular blocky structure; slightly hard when dry, friable when moist, slightly sticky and plastic when wet; mildly alkaline, pH 7.8; noncalcareous; thin continuous clay films on vertical and horizontal faces; clear wavy boundary.
B3ca1	17 to 27 inches. Light brownish gray (2.5Y 6/2) light clay loam, olive brown (2.5Y 4/4) when moist, olive brown to light olive brown (2.5Y 4.5/4) crushed color when moist; moderate medium and coarse prismatic breaking to moderate medium and coarse angular blocky structure; hard when dry, firm when moist, slightly sticky and plastic when wet; strongly alkaline, pH 8.7; calcareous, many medium white (N 8/0) soft lime segregations; thin patchy clay films on vertical faces.
B3ca2	27 to 34 inches. Same color, texture, structure, consistence, reaction, and coatings as above; discontinuous layer of hard limestone fragments in lower part; clear wavy boundary.
C1	34 to 51 inches. Gray (5Y 6/1 and 5/1) light clay loam, olive gray (5Y 4/2) and very dark gray (5Y 3/1) when moist, olive gray (5Y 4.5/2) crushed color when moist; massive; slightly hard when dry, firm when moist, slightly sticky and plastic when wet; strongly alkaline, pH 8.7; calcareous, many fine to coarse white (N 8/0) soft lime segregations; thin very patchy clay films on vertical faces; many medium prominent yellowish red (5YR 4/6) mottles, dark reddish brown (5YR 3/4) when moist; clear wavy boundary.
IIC2	51 to 56 inches. Pale olive (5Y 6/3) loamy fine sand, olive (5Y 4.5/3) when moist; massive uncemented sandstone; hard when dry, very friable when moist, nonsticky and nonplastic when wet; strongly alkaline, pH 8.7; calcareous; common fine prominent strong brown (7.5YR 5/6) mottles, dark brown (7.5YR 4/4) when moist.

Remarks: Colors for dry conditions unless noted otherwise.
Root Distribution: Primary 0-5", common 5-34".

NEWELL, SOUTH DAKOTA

MORTON LOAM (72,05,P,a)

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     WEIGHT  PERCENT  AND  VOLUME  PERCENT  OF  WATER  RETAINED

IDENTIFICATION        T E N S I O N S  (BARS)
                                                                   BD        TP       K
72   5   1   1      .1        .3        .6        3.        15.      G/CC      PCT     IN/HR

     DEPTH                                                             1
      0             30.53     26.51     22.02     16.36      9.49     1.32     50.19     .12
                    40.29     34.99     29.06     21.59     12.52     1.39     47.55     .34
                    FRAGMENT  25.94                 SIEVED   9.33ROCK PERCENT    .43
                                                                       1
      6             27.71     22.31     19.35     17.69     13.87     1.25     52.83     .51
                    34.63     27.88     24.18     22.11     17.33     1.41     46.79     .63
                    FRAGMENT  24.78                 SIEVED  12.35ROCK PERCENT
                                                                       1
     17             28.23     22.64     17.68     16.72     13.07     1.40     47.17    1.00
                    39.52     31.69     24.75     23.40     18.29     1.57     40.75     .82
                    FRAGMENT  20.86                 SIEVED  15.26ROCK PERCENT   3.23
                                                                       1
     34             30.51     26.51     23.29     21.61     19.70     1.38     47.92     .19
                    42.10     36.58     32.14     29.82     27.18     1.64     38.11     .32
                    FRAGMENT  24.32                 SIEVED  22.40ROCK PERCENT   3.21
                                                                       1
     51             33.33     21.22     16.99     15.92     14.07     1.28     51.70    1.62
                    42.66     27.16     21.74     20.37     18.00     1.36     48.68     .80
                    FRAGMENT  22.32                 SIEVED  13.39ROCK PERCENT    .65

      1=FIST
      2=CORE
      3=LOOSE
```

MORTON LOAM (72,05,P,b)

Location: Meade County, 1750' N and 2400' E of SW corner, Sec. 6, T10N, R10E.
Vegetation and land use: Blue grama, western wheatgrass.
Topography: Undulating to gently rolling upland; 4½ percent slope, E facing.
Drainage: Well drained; moderate permeability; medium runoff.
Parent Material: Medium textured Fox Hills materials.
Described and sampled by: P. R. Johnson and G. A. Schumaker

Horizon	Description
A1	0 to 3 inches. Dark grayish brown (2.5Y 4/2) loam, very dark grayish brown (2.5Y 3/2) when moist, dark grayish brown to very dark grayish brown (2.5Y 3.5/2) crushed color when moist; weak very fine granular structure; soft when dry, friable when moist, nonsticky and slightly plastic when wet; mildly alkaline, pH 7.8; noncalcareous; clear smooth boundary.
A3	3 to 6 inches. Grayish brown (2.5Y 5/2) loam, dark grayish brown (2.5Y 4/2) when moist, grayish brown to dark grayish brown (2.5Y 4.5/2) crushed color when moist; weak very fine granular structure; soft when dry, friable when moist, nonsticky and slightly plastic when wet; moderately alkaline, pH 8.4; calcareous, many very fine white (N 8/0) lime flecks; clear smooth boundary.
B21t1	6 to 13 inches. Grayish brown (2.5Y 5/2) clay loam, dark grayish brown (2.5Y 4/2) when moist, grayish brown to dark grayish brown (2.5Y 4.5/2) crushed color when moist; weak to moderate medium and coarse prismatic breaking to weak medium and fine angular blocky structure; hard when dry, friable when moist, slightly sticky and slightly plastic when wet; strongly alkaline, pH 8.7; calcareous, common medium distinct white (N8/0) soft lime segregations; thin continuous clay films on vertical and horizontal faces.
B21t2	13 to 21 inches. Grayish brown (2.5Y 5/2) clay loam, dark grayish brown (2.5Y 4/2) when moist, grayish brown to dark grayish brown (2.5Y 4.5/2) crushed color when moist; weak to moderate medium and coarse prismatic breaking to weak medium and fine angular blocky structure; hard when dry, friable when moist, slightly sticky and slightly plastic when wet; strongly alkaline, pH 8.7; calcareous, common medium distinct white (N 8/0) soft lime segregations; thin continuous clay films on vertical and horizontal faces; clear wavy boundary.
B22tca	21 to 30 inches. Olive gray (5Y 4/2) clay loam, olive gray to dark olive gray (5Y 3.5/2) when moist; very dark grayish brown (2.5Y 3/2) crushed color when moist; moderate medium and coarse prismatic breaking to moderate to strong medium and coarse angular blocky structure; extremely hard when dry, firm when moist, slightly sticky and plastic when wet; strongly alkaline, pH 8.7; calcareous, many medium distinct white (N 8/0) soft lime segregations, thin continuous clay films on vertical and horizontal faces; clear irregular boundary.
B23t	30 to 37 inches. Olive gray (5Y 5/2) clay loam, olive gray (5Y 4/2) when moist, dark grayish brown to very dark grayish brown (2.5Y 3.5/2) crushed color when moist; moderate medium and coarse prismatic breaking to moderate to strong medium and coarse angular blocky structure; extremely hard when dry, firm when moist, slightly sticky and plastic when wet; strongly alkaline, p^H 8.7; calcareous, few medium distinct white (N 8/0) soft lime segregations; thin continuous clay films on vertical and horizontal faces; clear irregular boundary.
B3ca	37 to 49 inches. Olive gray (5Y 4.5/2) clay loam, olive gray to dark olive gray (5Y 3.5/2) when moist; very dark grayish brown (2.5Y 3/2) crushed color when moist; moderate very coarse prismatic breaking to moderate very coarse angular blocky structure; extremely hard when dry, firm when moist, slightly sticky and plastic when wet; moderately alkaline, pH 8.2; calcareous, many fine to coarse distinct white (N8/0) soft lime segregations in ped interiors and white (N8/0), light gray (5Y 7/1 and 7/2) lime coatings on prism faces; thin continuous clay films on vertical faces.

Remarks: Root Distribution: Primary 0-6", common 6-37", few 37-49".

MORTON LOAM (72,05,P,b)

WEIGHT PERCENT AND VOLUME PERCENT OF WATER RETAINED

IDENTIFICATION	TENSIONS (BARS)							
72 5 1 2	.1	.3	.6	3.	15.	BD G/CC	TP PCT	K IN/HR
DEPTH								
0	34.64	27.15	24.69	21.33	18.00	1.14[1]	56.98	.30
	39.48	30.95	28.14	24.31	20.52	1.40	47.17	.41
	FRAGMENT	26.59		SIEVED	14.34	ROCK PERCENT	16.28	
3	34.99	27.27	23.92	20.13	16.00	1.13[1]	57.36	.10
	39.53	30.81	27.02	22.74	18.08	1.34	49.43	.56
	FRAGMENT	26.30		SIEVED	13.89	ROCK PERCENT		
6	31.97	26.88	25.00	20.44	16.03	1.18[1]	55.47	1.01
	37.72	31.71	29.50	24.11	18.91	1.37	48.30	1.44
	FRAGMENT	25.39		SIEVED	14.44	ROCK PERCENT		
21	33.69	26.54	26.12	21.22	17.62	1.32[1]	50.19	.17
	44.47	35.03	34.47	28.01	23.25	1.59	40.00	.42
	FRAGMENT	26.36		SIEVED	15.70	ROCK PERCENT		
30	33.18	28.96	27.88	22.40	18.07	1.43[1]	46.04	.21
	47.44	41.41	39.86	32.03	25.84	1.74	34.34	.08
	FRAGMENT	25.41		SIEVED	20.08	ROCK PERCENT	8.65	
37	29.74	25.38	26.35	20.63	18.71	1.43[1]	46.04	.09
	42.52	36.29	37.68	29.50	26.75	1.77	33.21	.06
	FRAGMENT	25.53		SIEVED	19.91	ROCK PERCENT	12.38	

1=FIST
2=CORE
3=LOOSE

VEBAR FINE SANDY LOAM (72,06,P,a)

Location: Butte County, 1550' E and 200' S of W quarter corner, Sec. 15, T13N, R9E.
Vegetation and land use: Threadleaf sedge, blue grama, prairie sandreed.
Topography: Gently rolling upland, 7% slopes, N facing.
Drainage: Well drained; moderately rapid permeability; slow surface runoff.
Parent Material: Hell Creek Sandstones
Described and sampled by: P. R. Johnson and G. A. Schumaker

Horizon	Description
A1	0 to 5 inches. Dark grayish brown (2.5Y 4/2) fine sandy loam, very dark grayish brown (10YR 3/2) when moist; very weak very fine granular structure; soft when dry, very friable when moist; neutral, pH 6.7; noncalcareous; clear smooth boundary.
B21	5 to 15 inches. Dark grayish brown (2.5Y 4/2) fine sandy loam, very dark grayish brown (2.5Y 3/2) when moist; weak medium and coarse prismatic breaking to weak medium and fine angular blocky structure; slightly hard when dry, very friable when moist; neutral, pH 6.9; noncalcareous; gradual smooth boundary.
B22	15 to 23 inches. Grayish brown (2.5Y 5/2) fine sandy loam, dark grayish brown (2.5Y 4/2) when moist; weak medium and coarse prismatic breaking to weak medium and fine angular blocky structure; slightly hard when dry, very friable when moist; neutral, pH 6.9; noncalcareous; gradual smooth boundary.
B23	23 to 32 inches. Grayish brown to light olive brown (2.5Y 5/3) fine sandy loam; dark grayish brown to olive brown (2.5Y 4/3) when moist; weak medium and coarse prismatic breaking to weak medium and fine angular blocky structure; slightly hard when dry, very friable when moist; neutral, pH 7.0; noncalcareous; clear wavy boundary.
IIC	32 to 50 inches. Light olive brown (2.5Y 5/4) loamy fine sand, olive brown (2.5Y 4/4) when moist; massive uncemented sandstone; slightly hard when dry, very friable when moist; neutral, pH 7.2.

Remarks: All colors for dry conditions unless noted.
Root Distribution: Primary 0-7", common 7-32".

VEBAR FINE SANDY LOAM (72,06,P,a)

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      WEIGHT  PERCENT  AND  VOLUME  PERCENT  OF  WATER  RETAINED

IDENTIFICATION        T E N S I O N S  (BARS)
                                                                BD        TP       K
72   6   1   1      .1        .3        .6        3.        15.       G/CC      PCT     IN/HR

     DEPTH                                                              3
      0            21.60     12.76     10.56      7.87      6.17      1.15     56.60
                   24.84     14.67     12.14      9.05      7.09
                   FRAGMENT                        SIEVED   6.43ROCK  PERCENT   7.99
                                                                        1
      5            19.16     12.93     12.79      9.23      7.40      1.43     46.04     1.38
                   27.39     18.48     18.28     13.19     10.58      1.51     43.02     2.74
                   FRAGMENT  11.10                 SIEVED   7.25ROCK  PERCENT    .32
                                                                        1
     23            21.46     17.25     15.81     12.31     10.42      1.54     41.89     1.02
                   33.04     26.56     24.34     18.95     16.04      1.66     37.36      .50
                   FRAGMENT  15.32                 SIEVED  10.50ROCK  PERCENT    .38
                                                                        1
     32            14.84      9.76     11.38      8.09      8.19      1.46     44.91     2.89
                   21.66     14.24     16.61     11.81     11.95      1.52     42.64     2.98
                   FRAGMENT  10.61                 SIEVED   8.39ROCK  PERCENT   7.30

      1=FIST
      2=CORE
      3=LOOSE
```

NEWELL, SOUTH DAKOTA

VEBAR FINE SANDY LOAM (72,06,P,b)

Location: Butte County, 2500' W and 100' N of SE corner, Sec. 9, T13N, R14E.
Vegetation and land use: Threadleaf sedge, blue grama, fringe sagewort, prairie sandreed.
Topography: Gently rolling uplands, 6% slopes, N facing.
Drainage: Well drained; moderately rapid permeability; slow surface runoff.
Parent Material: Hell Creek Sandstones
Described and sampled by: P. R. Johnson and G. A. Schumaker

Horizon	Description
A1	0 to 4 inches. Grayish brown (2.5Y 5/2) fine sandy loam, very dark grayish brown (2.5Y 3/2) when moist; very weak very fine granular structure; soft when dry, very friable when moist; neutral, pH 6.7; noncalcareous; clear wavy boundary.
B21	4 to 10 inches. Olive brown (2.5Y 4/4) fine sandy loam, very dark grayish brown (2.5Y 3/2) when moist; weak coarse and medium prismatic breaking to very weak coarse and medium angular blocky structure; slightly hard when dry, very friable when moist; neutral, pH 6.8; noncalcareous; clear smooth boundary.
B22	10 to 19 inches. Olive brown (2.5Y 4/4) fine sandy loam, dark grayish brown to very dark grayish brown (2.5Y 3.5/2) when moist; weak coarse and medium prismatic breaking to very weak coarse and medium angular blocky structure; slightly hard when dry, very friable when moist; neutral, pH 6.9; noncalcareous; clear smooth boundary.
B23	19 to 28 inches. Light olive brown (2.5Y 5/4) fine sandy loam, dark grayish brown (2.5Y 4/2) when moist; weak coarse and medium prismatic breaking to very weak coarse and medium angular blocky structure; slightly hard when dry, very friable when moist; neutral, pH 7.0; noncalcareous; clear smooth boundary.
B24	28 to 37 inches. Grayish brown (2.5Y 5/2) fine sandy loam, dark grayish brown (2.5Y 4/2) when moist; very weak coarse and medium prismatic breaking to very weak coarse and medium angular blocky structure; slightly hard when dry, very friable when moist; neutral, pH 7.0; noncalcareous; clear wavy boundary.
IIC	37 to 52 inches. Grayish brown to light olive brown (2.5Y 5/3) loamy fine sands; grayish brown (2.5Y 5/2) when moist; massive uncemented sandstone; hard when dry, friable when moist; neutral, pH 7.2.

Remarks: All colors for dry conditions unless noted.
Root Distribution: Primary 0-6", common 6-25", few 25-47".

NEWELL, SOUTH DAKOTA

VEBAR FINE SANDY LOAM (72,06,P,b)

```
     WEIGHT  PERCENT  AND  VOLUME  PERCENT  OF  WATER  RETAINED

IDENTIFICATION        T E N S I O N S  (BARS)
                                                                BD        TP       K
72   6   1   2     .1       .3       .6       3.        15.      G/CC      PCT     IN/HR

     DEPTH                                                           1
      0            19.89    11.46    10.30     7.94     6.11     1.36     48.68     1.59
                   27.05    15.58    14.00    10.79     8.30     1.47     44.53     3.07
                   FRAGMENT 10.06              SIEVED   6.17ROCK PERCENT 12.88
                                                                     1
      4            19.26    12.26    11.55     8.82     7.09     1.42     46.42      .67
                   27.34    17.40    16.40    12.52    10.06     1.51     43.02     2.53
                   FRAGMENT 12.09              SIEVED   7.79ROCK PERCENT  1.84
                                                                     1
     10            17.52    11.11    10.59     7.90     6.97     1.36     48.68     2.90
                   23.82    15.10    14.40    10.74     9.47     1.44     45.66     4.36
                   FRAGMENT 11.59              SIEVED   6.98ROCK PERCENT  2.59
                                                                     1
     37            19.89     9.96     9.36     7.24     7.19     1.50     43.40     3.61
                   29.83    14.94    14.04    10.86    10.78     1.58     40.38     3.54
                   FRAGMENT  9.42              SIEVED   6.93ROCK PERCENT   .85

      1=FIST
      2=CORE
      3=LOOSE
```

RHOADES LOAM (72,07,P,a)

Location: Butte County, 2000' W and 2100' S of NE corner, Sec. 15, T13N, R9E.
Vegetation and land use: Blue grama, threadleaf sedge, western wheatgrass, red tripleawn, needleandthread, fringe sagewort.
Topography: Toeslope in rolling upland, 4½ percent slope, W facing.
Drainage: Well drained; very slow permeability; medium to rapid surface runoff.
Parent Material: Hell Creek Formation shales
Described and sampled by: P. R. Johnson and G. A. Schumaker

Horizon	Description
A21	0 to 5 inches. Gray to light brownish gray (2.5Y 6/1) loam, very dark grayish brown (2.5Y 3/2) when moist and crushed color when moist; very weak very fine granular structure; slightly hard when dry, very friable when moist, slightly sticky and nonplastic when wet; mildly alkaline, pH 7.8; noncalcareous; clear smooth boundary.
A22	5 to 9 inches. Grayish brown (2.5Y 5/2) fine sandy loam, very dark grayish brown (2.5Y 3/2) when moist and crushed color when moist; very weak very fine granular structure; hard when dry, very friable when moist; nonsticky and nonplastic; strongly alkaline, pH 8.7; noncalcareous; clear wavy boundary.
B2t	9 to 20 inches. Grayish brown to light brownish gray (2.5Y 5.5/2) sandy clay loam, dark grayish brown (2.5Y 4/2) when moist and crushed color when moist; moderate very coarse columnar breaking to moderate, medium and coarse angular blocky structure; extremely hard when dry, firm when moist, slightly sticky and plastic when wet; strongly alkaline, pH 8.8; calcareous, common fine and medium white (N 8/0) soft lime segregations; matrix is noncalcareous; thin patchy clay films on vertical faces; clear wavy boundary.
B3ca	20 to 34 inches. Olive to pale olive (5Y 5.5/3) clay loam, olive (5Y 4.5/3) when moist and crushed color when moist; weak to moderate medium and coarse angular blocky structure; extremely hard when dry, firm when moist, slightly sticky and plastic when wet; strongly alkaline, pH 9.0; calcareous, many fine and medium white (N 8/0) lime segregations in streaks and stringers, matrix is noncalcareous; thin patchy clay films on vertical faces; clear wavy boundary.
IIC	34 to 40 inches. Light olive gray (5Y 6/2) clay loam, olive (5Y 5/3) when moist, olive (5Y 4/3) crushed color when moist; stratified sandy, silty, and clayey shales; extremely hard when dry, firm when moist, slightly sticky and plastic when wet; strongly alkaline, pH 9.0; calcareous, many fine and medium white (N 8/0) soft lime segregations in streaks, spots and stringers; few medium prominent yellowish brown (10YR 5/6) mottles when dry and moist.

Remarks: Colors for dry conditions unless noted otherwise.
Root Distribution: Primary 0-9", few 9-20".
Depth of A2 horizon ranges from 6 to 20 inches.

RHOADES LOAM (72,07,P,a)

```
     WEIGHT  PERCENT  AND  VOLUME  PERCENT  OF  WATER  RETAINED

IDENTIFICATION        T E N S I O N S  (BARS)
                                                                  BD        TP       K
72   7   1   1     .1       .3        .6        3.        15.     G/CC      PCT     IN/HR

     DEPTH                                                            3
      0           25.53    21.07     19.57     14.92     12.46*   1.43     46.04
                  36.50    30.13     27.98     21.33     17.81
                  FRAGMENT                       SIEVED   8.37ROCK PERCENT   .38
                                                                      3
      5           24.74    20.19     17.14     16.35      9.78    1.44     45.66
                  35.62    29.07     24.68     23.54     14.08
                  FRAGMENT                       SIEVED   8.60ROCK PERCENT
                                                                      3
      9           24.28    19.74     18.52     15.21     16.42    1.27     52.08       0
                  30.83    25.06     23.52     19.31     20.85
                  FRAGMENT                       SIEVED  10.90ROCK PERCENT  7.00
                                                        (16.78)       3
     20           30.26    24.91     23.07     19.37     15.19    1.20     54.72       0
                  36.31    29.89     27.68     23.24     18.22
                  FRAGMENT                       SIEVED  12.36ROCK PERCENT
                                                                      3
     34           25.11    18.91     16.57     12.70     12.60    1.23     53.58
                  30.88    23.25     20.38     15.62     15.49
                  FRAGMENT                       SIEVED   8.68ROCK PERCENT
                                                         *RERUN AS 12.14

      1=FIST
      2=CORE
      3=LOOSE
```

RHOADES FINE SANDY LOAM (72,07,P,b)

Location: Butte County, 2580' W and 1000' N of SE corner, Sec. 9, T13N, R9E.
Vegetation and land use: Blue grama, fringe sagewort, western wheatgrass.
Topography: Toeslope breaking to small drainageway in gently rolling upland, 4% slopes.
Drainage: Well drained; very slow permeability; medium runoff.
Parent Material: Sands, clays and silts of Hell Creek Formation
Described and sampled by: P. R. Johnson and G. A. Schumaker

Horizon	Description
A12	0 to 3 inches. Grayish brown (2.5Y 5/2) fine sandy loam, very dark grayish brown (2.5Y 3/2) when moist and crushed color when moist; very weak very fine granular structure; soft when dry, very friable when moist, nonsticky and nonplastic when wet; neutral, pH 6.6; noncalcareous; clear smooth boundary.
A12	3 to 9 inches. Same color and texture as above; very weak medium and coarse subangular blocky breaking to very weak very fine granular structure; slightly hard when dry, very friable when moist, nonsticky and nonplastic when wet; mildly alkaline, pH 7.6; noncalcareous; clear wavy boundary.
B2t	9 to 20 inches. Grayish brown (2.5Y 5/2) sandy clay loam; dark grayish brown (2.5Y 4/2) when moist and crushed color when moist; moderate very coarse columnar breaking to moderate to strong coarse and medium angular blocky structure; extremely hard when dry, firm when moist, slightly sticky and plastic when wet; strongly alkaline, pH 8.7; calcareous. common fine and medium, white (N 8/0) soft lime segregations; thin continuous clay films on vertical faces and thin patchy clay films on horizontal faces; sand coatings on column tops and vertical faces; clear irregular boundary.
B31ca	20 to 29 inches. Dark grayish brown (2.5Y 4/2) fine sandy loam, very dark grayish brown (2.5Y 3/2) when moist and crushed color when moist; massive; extremely hard when dry, very friable when moist, nonsticky and nonplastic when wet; strongly alkaline, pH 8.8; calcareous, common fine and medium white (N 8/0) soft lime segregations in spots and stringers; sand coatings on fracture faces; clear irregular boundary.
B32ca	29 to 42 inches. Black (10YR 2/1) when moist and dry fine sandy loam, very dark gray (10YR 3/1) crushed color when moist; massive; extremely hard when dry, very friable when moist, slightly sticky and nonplastic when wet; strongly alkaline, pH 8.9; calcareous; many fine and medium white (N 8/0) soft lime segregations; sand coatings on fracture faces; clear irregular boundary.
IIC	42 to 50 inches. Light brownish gray (2.5Y 6/2) loamy fine sand; dark grayish brown (2.5Y 4/2) when moist and crushed color when moist; massive very compact uncemented sandstone; extremely hard when dry; strongly alkaline, pH 9.0; calcareous, few fine white (N 8/0) soft lime segregations.

Remarks: Colors for dry conditions unless noted otherwise.
Root Distribution: Primary 0-9", some 9-20", none below 20".

RHOADES FINE SANDY LOAM (72,07,P,b)

```
        WEIGHT  PERCENT  AND  VOLUME  PERCENT  OF  WATER  RETAINED

IDENTIFICATION         T E N S I O N S  (BARS)
                                                                      BD        TP      K
72    7    1    2     .1        .3        .6        3.        15.      G/CC      PCT   IN/HR

      DEPTH                                                              3
       0              21.14     14.59     10.06      9.34      5.10     1.38     47.92
                      29.17     20.13     13.88     12.88      7.03
                      FRAGMENT                        SIEVED   4.97ROCK PERCENT  1.84
                                                                         3
       3              17.19     12.91     10.47      7.74      4.79     1.47     44.53
                      25.26     18.97     15.39     11.37      7.04
                      FRAGMENT                        SIEVED   4.78ROCK PERCENT   .27
                                                                         1
       9              29.51     25.00     20.31     19.75     17.03     1.47     44.53    0
                      43.37     36.75     29.85     29.03     25.03     1.75     33.96
                      FRAGMENT 24.75                  SIEVED  17.82ROCK PERCENT  5.78
                                                                         1
      20              33.45     29.11     24.76     21.52     15.53     1.38     47.92    0
                      46.16     40.17     34.16     29.69     21.43     1.80     32.08
                      FRAGMENT 28.10                  SIEVED  19.52ROCK PERCENT 30.11
                                                                         3
      29              26.98     19.21     14.98     13.83     12.04     1.25     52.83
                      33.72     24.01     18.72     17.28     15.05
                      FRAGMENT                        SIEVED  15.66ROCK PERCENT  2.76
                                                                         3
      42              34.87     27.31     24.53     23.92     19.18     1.09     58.87
                      38.00     29.76     26.73     26.07     20.90
                      FRAGMENT                        SIEVED  10.70ROCK PERCENT 12.02
                                                              (23.47)

        1=FIST
        2=CORE
        3=LOOSE
```

RHOADES ASSOCIATE CLAY LOAM (72,08,P,a)

Location: Butte County, 1980' W and 2100' S of NE corner, Sec. 15, T13N, R9E.
Vegetation and land use: Barren
Topography: Micro-depression on toeslope in rolling upland, 4½% slopes, W facing.
Drainage: Well drained; very slow permeability; very rapid runoff.
Parent Material: Hell Creek Formation shale
Described and sampled by: P. R. Johnson and G. A. Schumaker

Horizon	Description
A21	0 to 1/2 inch. Light gray (5Y 7/2) surface, grayish brown (2.5Y 5/2) when moist; grayish brown (2.5Y 5/2) undersides, very dark grayish brown (2.5Y 3/2) when moist; dark grayish brown (2.5Y 4/2) crushed color when moist; light clay loam; crust; hard when dry, firm when moist, slightly sticky and slightly plastic when wet; moderately alkaline, pH 8.2; noncalcareous; abrupt smooth boundary.
A22	1/2 to 3 inches. Dark grayish brown to grayish brown (2.5Y 4.5/2) light clay loam, dark grayish brown (2.5Y 4/2) when moist and crushed color when moist; weak to moderate fine and medium angular and subangular blocky structure; very hard when dry, firm when moist, slightly sticky and slightly plastic when wet; strongly alkaline, pH 8.6; calcareous; thin very patchy clay films; clear wavy boundary.
B2	3 to 10 inches. Light olive brown (2.5Y 5/4) and light yellowish brown (2.5Y 6/4) clay loam, olive brown to light olive brown (2.5Y 4.5/4) and light olive brown (2.5Y 5/4) when moist, olive brown (2.5Y 5/4) crushed color when moist; weak to moderate very coarse and coarse prismatic breaking to moderate medium and coarse angular blocky structure; extremely hard when dry, firm when moist; slightly sticky and slightly plastic when wet; strongly alkaline, pH 8.8; calcareous; common medium white (N 8/0) soft lime segregations; thin patchy clay films on vertical faces; few fine faint light gray (2.5Y 7/2) mottles, light brownish gray to light yellowish brown (2.5Y 6/3) when moist; few medium prominent yellowish brown (10YR 5/6) when dry and moist; clear wavy boundary.
C1	10 to 18 inches. Light olive brown (2.5Y 5/4) clay loam, olive brown to light olive brown (2.5Y 4.5/4) when moist and crushed color when moist; partially weathered shale; hard when dry, friable when moist, slightly sticky and slightly plastic when wet; strongly alkaline, pH 9.0; calcareous, many medium white (N 8/0) soft lime segregations; many medium prominent yellowish brown (10YR 5/6) mottles when dry and moist; clear wavy boundary.
R1	18 to 28 inches. Light olive gray (5Y 6/2) clay loam, olive (5Y 5/3) when moist and crushed color when moist; platy chale; very hard when dry, firm when moist, sticky and slightly plastic when wet; strongly alkaline, pH 9.0; calcareous, many fine and medium white (N 8/0) soft lime segregations; few medium and coarse prominent yellowish brown (10YR 5/6) mottles; dark yellowish brown (10YR 4/4) when moist; common medium and coarse distinct light yellowish brown (2.5Y 6/4) mottles, light olive brown (2.5Y 5/4) when moist; clear wavy boundary.
R2	28 to 40 inches. Pale olive (5Y 6/3) and light gray (5Y 7/2) silty clay loam, olive (5Y 5/3) and light olive gray (5Y 6/2) when moist, olive (5Y 5/3) crushed color when moist; medium angular blocky shale; extremely hard when dry, extremely firm when moist, sticky and plastic when wet; strongly alkaline, pH 9.0; noncalcareous.

Remarks: Colors are for dry conditions unless noted otherwise.
Root distribution: None.

RHOADES ASSOCIATE CLAY LOAM (72,08,P,a)

WEIGHT PERCENT AND VOLUME PERCENT OF WATER RETAINED

IDENTIFICATION	TENSIONS (BARS)					BD	TP	K
72 8 1 1	.1	.3	.6	3.	15.	G/CC	PCT	IN/HR
DEPTH						1		
0	29.56	23.26	18.66	17.78	14.54	1.35	49.06	.19
	39.90	31.40	25.19	24.00	19.62	1.51	43.02	.03
	FRAGMENT	24.66		SIEVED	16.22ROCK	PERCENT	14.05	
						1		
3	31.18	23.54	18.14	18.05	14.39	1.51	43.02	0
	47.08	35.54	27.39	27.25	21.72	1.72	35.09	
	FRAGMENT	23.13		SIEVED	12.30ROCK	PERCENT		
						1		
10	27.02	23.00	17.35	17.20	15.24	1.38	47.92	0
	37.28	31.74	23.94	23.73	21.03	1.62	38.87	
	FRAGMENT	25.23		SIEVED	11.44ROCK	PERCENT	11.96	
						1		
18	29.33	25.99	19.32	18.07	17.28	1.43	46.04	0
	41.94	37.16	27.62	25.84	24.71	1.73	34.72	
	FRAGMENT	23.54		SIEVED	15.90ROCK	PERCENT		
						3		
28	32.15	26.07	21.45	19.44	17.55	1.21	54.34	
	38.90	31.54	25.95	23.52	21.23			
	FRAGMENT			SIEVED	20.24ROCK	PERCENT	26.12	

1=FIST
2=CORE
3=LOOSE

RHOADES ASSOCIATE SANDY CLAY LOAM (72,08,P,b)

Location: Butte County, 2600' W and 980' N of SE corner, Sec. 9, T13N, R9E.
Vegetation and land use: Barren
Topography: Micro-depression in toeslope breaking into small drainageway in gently rolling upland, 4% slopes, N facing.
Drainage: Well drained; very slow permeability.
Parent Material: Sands, silts and clays of Hell Creek Formation.
Described and sampled by: P. R. Johnson and G. A. Schumaker

Horizon	Description
A2	0 to 1/2 inch. Light gray (5Y 7/1) surface and dark grayish brown to grayish brown (2.5Y 4.5/2) underside when dry, dark grayish brown (2.5Y 4/2) surface and very dark grayish brown (10YR 3/2) underside when moist, dark grayish brown to very dark grayish brown (2.5Y 3.5/2) crushed color when moist; sandy clay loam; crust; very hard when dry, firm when moist, slightly sticky and plastic when wet; strongly alkaline, pH 8.6; noncalcareous; abrupt smooth boundary.
B21	1/2 to 3 inches. Grayish brown to dark grayish brown (2.5Y 4.5/2) sandy clay loam; very dark grayish brown (2.5Y 3/2) when moist and crushed color when moist; moderate medium angular blocky structure; extremely hard when dry, firm when moist, slightly sticky and plastic when wet; strongly alkaline, pH 8.9; noncalcareous; thin patchy clay films on vertical and horizontal faces; abrupt smooth boundary.
B3ca	3 to 15 inches. Olive gray (5Y 5/2) sandy clay loam, olive gray (5Y 4/2) when moist, dark grayish brown (2.5Y 4/2) crushed color when moist; moderate medium and coarse angular blocky structure; extremely hard when dry, firm when moist, slightly sticky and plastic when wet; very strongly alkaline, pH 9.2; calcareous, many fine and medium white (N 8/0) soft lime segregations; thin continuous clay films on vertical faces; clear irregular boundary.
IIC1	15 to 22 inches. Gray to light olive gray (5Y 6/1.5) loamy fine sand; olive gray (5Y 4/2) when moist; massive uncemented sandstone; extremely hard when dry, very friable when moist, nonsticky and nonplastic when wet; strongly alkaline, pH 9.0; calcareous, many medium white (N 8/0) soft lime segregations; clear irregular boundary.
IIIC2	22 to 35 inches. Gray (5Y 5/1) sandy clay loam; dark gray (5Y 4/1) when moist, gray to dark gray (5Y 4/1.5) crushed color when moist; massive uncemented sandstone with seams of silty and clayey shale; extremely hard when dry, firm when moist, slightly sticky and slightly plastic when wet; very strongly alkaline, pH 9.1; calcareous, many fine and medium white (N 8/0) soft lime segregations; clear irregular boundary.
IVR	35 to 54 inches. Multicolored stratified silty clay loam platy shale, grayish brown to dark grayish brown (10YR 4.5/2) in upper 3 inches, gray (5Y 6/1 and 5/1) with few fine and medium prominent strong brown (10YR 5/6) mottles in lower part; very hard when dry, firm when moist, sticky and plastic when wet; strongly alkaline, pH 8.7; calcareous in upper 3 inches, many medium white (N 8/0) soft lime segregations in stringers and spots.

Remarks: All colors for dry conditions unless otherwise noted.
Root Distribution: None.

RHOADES ASSOCIATE SANDY CLAY LOAM (72,08,P,b)

```
       WEIGHT  PERCENT  AND  VOLUME  PERCENT  OF  WATER  RETAINED

IDENTIFICATION         T E N S I O N S  (BARS)
                                                                   BD       TP      K
72   8   1   2     .1        .3       .6       3.        15.      G/CC     PCT    IN/HR

     DEPTH                                                            3
       0          26.54     20.64    18.98    15.61     10.51     1.28    51.70
                  33.97     26.41    24.29    19.98     13.45
                  FRAGMENT                      SIEVED 13.33ROCK PERCENT 24.03
                                                                      1
       1          28.44     21.34    17.82    15.23     12.54     1.46    44.91      0
                  41.52     31.15    26.01    22.23     18.30     1.78    32.83
                  FRAGMENT  23.26               SIEVED 10.32ROCK PERCENT
                                                                      1
       3          29.19     22.55    22.37    18.97     12.73     1.53    42.26      0
                  44.66     34.50    34.22    29.02     19.47     1.84    30.57
                  FRAGMENT  20.28               SIEVED 10.05ROCK PERCENT
                                                                      3
      15          24.19     16.93    16.29    14.73     12.45     1.24    53.21
                  29.99     20.99    20.19    18.26     15.43
                  FRAGMENT                      SIEVED  8.56ROCK PERCENT
                                                                      3
      22          27.17     21.48    19.99    14.64     14.24     1.20    54.72
                  32.60     25.77    23.98    17.56     17.08
                  FRAGMENT                      SIEVED 16.09ROCK PERCENT 16.23
                                                                      3
      35          34.45     29.10    26.63    22.54     19.65     1.10    58.49
                  37.89     32.01    29.29    24.79     21.61
                  FRAGMENT                      SIEVED  5.55ROCK PERCENT 59.30
                                                       (25.34)

       1=FIST
       2=CORE
       3=LOOSE
```

FLASHER FINE SANDY LOAM (72,09,P,a)

Location: Butte County, 1400' W and 2150' S of NE corner, Sec. 15, T13N, R9E.
Vegetation and land use: Prairie sandreed, blue grama, threadleaf sedge.
Topography: Ridgetop in gently rolling to rolling upland, 4% slope at sampling site breaking to 12%, NW facing.
Drainage: Well drained; rapid permeability; medium to slow runoff.
Parent Material: Hell Creek Formation sandstone.
Described and sampled by: P. R. Johnson and G. A. Schumaker

Horizon	Description
A1	0 to 1 inch. Very dark grayish brown (10YR 3/2) fine sandy loam, black to very dark gray (10YR 2.5/1) when moist, very weak very fine granular structure; loose when dry, very friable when moist; moderately alkaline, pH 8.0; calcareous; clear smooth boundary.
AC	1 to 8 inches. Light brownish gray (2.5Y 6/2) fine sandy loam, dark grayish brown (2.5Y 4/2) when moist; very weak very fine granular structure; soft when dry, very friable when moist; moderately alkaline, pH 8.4; calcareous; clear smooth boundary.
C1	8 to 26 inches. Gray (5Y 6/1) loamy fine sand, olive gray (5Y 4/2) when moist; uncemented sandstone breaking to single grain; soft when dry, very friable when moist; moderately alkaline, pH 8.1; matrix is noncalcareous, effervescence common in spots; clear wavy boundary.
C2	26 to 40 inches. Light gray (5Y 6.5/1) loamy fine sand, gray (5Y 5/1) when moist, stratified uncemented sandstone breaking to single grain; soft when dry, very friable when moist; moderately alkaline, pH 8.1; matrix is noncalcareous but effervescence common in spots.

Remarks: Colors are for dry conditions unless noted otherwise.
Root Distribution: Primary 0-8", common 8-26".

FLASHER FINE SANDY LOAM (72,09,P,a)

```
      WEIGHT  PERCENT  AND  VOLUME  PERCENT  OF  WATER  RETAINED

IDENTIFICATION        T E N S I O N S  (BARS)
                                                                BD      TP      K
72   9   1   1      .1       .3       .6       3.       15.      G/CC    PCT    IN/HR

     DEPTH                                                          3
       0            24.51    17.96    15.32    12.76    10.29    1.07    59.62
                    26.22    19.21    16.39    13.65    11.01
                    FRAGMENT                    SIEVED 11.24ROCK PERCENT 13.83
                                                                    1
       1            24.56    17.49    14.21    10.63     8.65    1.21    54.34   1.60
                    29.71    21.16    17.19    12.86    10.46    1.35    49.06   3.08
                    FRAGMENT 19.96              SIEVED  8.94ROCK PERCENT 16.74
                                                                    1
       8            16.66    12.06    10.22     7.80     7.21    1.54    41.89    .98
                    25.65    18.57    15.73    12.01    11.10    1.62    38.87   1.78
                    FRAGMENT 14.03              SIEVED  7.37ROCK PERCENT 17.92
                                                                    3
      26            16.20    11.32     9.20     7.75     6.36    1.28    51.70
                    20.73    14.48    11.77     9.92     8.14
                    FRAGMENT                    SIEVED  7.05ROCK PERCENT  8.68

        1=FIST
        2=CORE
        3=LOOSE
```

FLASHER FINE SANDY LOAM (72,09,P,b)

Location: Butte County, 300' W and 250' S of N quarter corner, Sec. 29, T12N, R8E.
Vegetation and land use: Prairie sandreed, threadleaf sedge, blue grama.
Topography: Ridgetop in rolling upland, 9% slope at site breaking to 20%, SW facing.
Drainage: Somewhat excessively drained; rapid permeability; slow to medium runoff.
Parent Material: Hell Creek Formation sandstone
Described and sampled by: P. R. Johnson and G. A. Schumaker

Horizon	Description
A1	0 to 5 inches. Light brownish gray (2.5Y 6/2) fine sandy loam, grayish brown (2.5Y 5/2) when moist; very weak fine granular structure; soft when dry, very friable when moist; moderately alkaline, pH 8.4; calcareous; clear smooth boundary.
AC	5 to 15 inches. Light brownish gray (2.5Y 6/2) fine sandy loam, grayish brown to light olive brown (2.5Y 5/3) when moist; very weak medium subangular blocky breaking to very weak fine granular structure; soft when dry, very friable when moist; strongly alkaline, pH 8.7; calcareous; clear wavy boundary.
C1	15 to 34 inches. Light brownish gray (2.5Y 6/2) fine sandy loam, grayish brown (2.5Y 5/2) when moist; massive; slightly hard when dry, very friable when moist; strongly alkaline, pH 8.7; calcareous; few fine white (N 8/0) soft lime segregations; clear irregular boundary.
C2	34 to 45 inches. Light olive gray (5Y 6/2) loamy fine sand; olive (5Y 4/3) when moist; massive; hard when dry, very friable when moist; strongly alkaline, pH 8.7; calcareous, few fine white (N 8/0) soft lime segregations.

Remarks: Colors are for dry conditions unless noted otherwise.
Root Distribution: Primary 0-6", common 6-30", few 30-44".

FLASHER FINE SANDY LOAM (72,09,P,b)

```
      WEIGHT  PERCENT  AND  VOLUME  PERCENT  OF  WATER  RETAINED

IDENTIFICATION         T E N S I O N S  (BARS)
                                                                  BD        TP       K
72   9   1   2     .1         .3         .6        3.          15.        G/CC      PCT    IN/HR

     DEPTH                                                                 1
       0           16.90      12.24      10.72      8.63       6.61       1.36     48.68    3.01
                   22.98      16.64      14.57     11.73       8.98       1.48     44.15    4.98
                   FRAGMENT   12.67                 SIEVED     6.51ROCK PERCENT   2.22
                                                                           1
       5           15.29      11.21       9.52      8.23       6.17       1.33     49.81    6.03
                   20.33      14.90      12.66     10.94       8.20       1.42     46.42    7.27
                   FRAGMENT   11.26                 SIEVED     5.79ROCK PERCENT   3.09
                                                                           3
      15           17.07      11.00       9.09      7.36       5.59       1.26     52.45
                   21.50      13.86      11.45      9.27       7.04
                   FRAGMENT                         SIEVED     5.66ROCK PERCENT   5.87
                                                                           3
      34           17.62       9.99       7.57      7.00       6.51       1.24     53.21
                   21.84      12.38       9.38      8.68       8.07
                   FRAGMENT                         SIEVED     6.29ROCK PERCENT   1.25

       1=FIST
       2=CORE
       3=LOOSE
```

TROY GRAVELLY LOAM (X1,01,C,a and b)

Location: Dairy Research Farm, Beemerville, "Bull Barn Farm"; pits dug just above old erosion plots.
Vegetation and land use: Alfalfa-bromegrass
Topography: Gently sloping
Drainage: Moderately well drained
Parent Material: Wisconsin till, derived from acid gray slate and shale and gray calcareous sandstone.
Described and sampled by: S. J. Fletcher and G. P. Lawless

Horizon	Description
Pit a	
Ap	0 to 11 inches. Very dark grayish brown (10YR 3/2) gravelly loam, weak medium crumb structure; friable when moist, slightly sticky when wet; vigorous worm activity; pH 6.2 to 6.4; lower boundary clear.
B22	11 to 18 inches. Yellowish brown (10YR 5/4) gravelly loam, moderate medium subangular blocky structure; slightly hard when dry, slightly firm when moist, slightly sticky when wet; silt and clay bridges between grains, weak coatings along few root and worm channels; vigorous worm activity; pH 6.0 to 6.2; lower boundary is gradual and wavy.
IIC1x	18 to 36 inches plus. Dark yellowish brown to dark brown matrix (10YR 4/4-4/3), many medium mottles with light yellowish brown interiors and yellowish brown borders (2.5Y 6/4) and (10YR 5/6 and 5/8), gravelly coarse sandy loam; massive; breaks into coarse subangular blocks; very hard and brittle when dry; very firm when moist; silt and clay movement is evident along borders of some mottles; pH 5.6 to 5.8; lower boundary not determined.
Pit b	
Ap	0 to 11 inches. Dark brown (10YR 3/3) gravelly loam; weak medium crumb structure; friable when moist, slightly sticky when wet; earthworm activity is vigorous; pH 6.2 to 6.4; clear lower boundary.
B21	11 to 17 inches. Yellowish brown towards dark yellowish brown (10YR 5/4 towards 4/4) loam; with weak fine and weak medium subangular blocky structure; moist and friable, slightly sticky when wet; vigorous earthworm activity; pH 6.2 to 6.4; gradual broken lower boundary (this is a discontinuous horizon).
B22	17 to 28 inches. Dark yellowish brown (10YR 4/4) loam; moderate medium subangular blocky structure; friable in major portion of horizon, slightly firm near lower boundary; slightly sticky when wet; silt and clay bridges between grains, coating of fines along root and worm channels; worm channels are abundant, with Ap horizon material near lower boundary of B22; pH 6.2; gradual wavy lower boundary.
IIC1x	28 to 48 inches. Dark yellowish brown matrix (10YR 4/4), many medium and large wedge shaped and semi-round mottles, with light yellowish brown interiors (2.5Y 6/4) and yellowish brown borders (10YR 5/6, 5/8) sandy loam; massive, breaks into coarse subangular blocks; very hard and brittle, very firm; silt and clay coatings are present along some cracks and mottles, orientation and origin of clay undetermined; pH 5.6; lower boundary undetermined.

BEEMERVILLE, NEW JERSEY

TROY GRAVELLY LOAM (X1,01,C,a and b)

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     WEIGHT  PERCENT  AND  VOLUME  PERCENT  OF  WATER  RETAINED

IDENTIFICATION          T E N S I O N S  (BARS)
                                                               BD        TP       K
91   1   2   1     .1       .3       .6       3.       15.     G/CC      PCT    IN/HR

   DEPTH                                                          3
    0             25.75    22.60    15.64    16.42     8.09    1.23     53.58    2.04
                  31.67    27.79    19.23    20.19     9.95                      2.21
                  FRAGMENT                    SIEVED 10.64ROCK PERCENT 33.46
                                                                  3
     11           21.22    16.82    14.48    12.12     7.31    1.38     47.92    1.16
                  29.28    23.21    19.98    16.72    10.08                       .58
                  FRAGMENT                    SIEVED  5.81ROCK PERCENT 31.08
                                                                  1
     18           17.52    15.19    12.42    11.14     7.53    1.62     38.87     .20
                  28.38    24.60    20.12    18.04    12.19    1.70     35.85     .40
                  FRAGMENT 16.66              SIEVED 11.09ROCK PERCENT 36.09

IDENTIFICATION          T E N S I O N S  (BARS)
                                                               BD        TP
91   1   2   2     .1       .3       .6       3.       15.     G/CC      PCT

   DEPTH                                                          3
    0             23.14    20.65    13.76    13.41     9.37    1.25     52.83    8.11
                  28.92    25.81    17.20    16.76    11.71                      4.37
                  FRAGMENT                    SIEVED 12.55ROCK PERCENT 33.32
                                                                  1
     17           18.65    14.45    13.15    12.36     7.30    1.37     48.30    4.23
                  25.55    19.79    18.01    16.93    10.00    1.50     43.40    3.21
                  FRAGMENT 12.49              SIEVED 12.10ROCK PERCENT 30.71
                                                                  1
     28           17.84    14.58    10.82     9.58     7.41    1.56     41.13     .40
                  27.83    22.74    16.87    14.94    11.55    1.61     39.25     .67
                  FRAGMENT 16.61              SIEVED  6.42ROCK PERCENT 33.53

       1=FIST
       2=CORE
       3=LOOSE
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FREEHOLD LOAMY SAND (X2,01,C,a)

Location: Marlboro State Hospital Experimental Runoff Plots
Vegetation and land use: Winter rye
Topography: Smooth, 3 percent slope
Drainage: Well drained
Parent Material: Glauconitic sands, Coastal Plain
Described and sampled by: K. P. Wilson, C. F. Jablonski, G. P. Lawless

Horizon	Description
Ap	0 to 10 inches. Dark brown (10YR 3/3-4/3) loamy sand; very weak fine granular structure; loose; abundant fine roots; abrupt smooth boundary; ranges from 6 to 14 inches thick; rapid permeability.
B1	10 to 14 inches. Dark brown (7.5YR 4/4) sandy loam; weak coarse subangular blocky structure; slightly sticky; fine roots; thin darker coatings on ped faces; coarse fractures coated with organic matter extend from Ap down through B and coarse root channels also filled with Ap material; 3-10 percent visible glauconite, some fine mica; boundary smooth gradual; 0 to 4 inches thick; moderately rapid permeability.
B2	14 to 24 inches. Dark brown to strong brown (7.5YR 4/4-5/6) sandy clay loam; weak medium subangular blocky structure; friable and sticky; fine roots; good, clear, continuous thin coatings on all ped faces; interior pores partially filled; 3-10 percent visible glauconite, some fine mica; root channels filled with Ap material; boundary smooth gradual; 8-14 inches thick; moderate permeability.
B3	24 to 35 inches. Dark brown to strong brown (7.5YR 4/4-5/6) sandy loam; weak very coarse subangular blocky structure; friable, very slightly sticky; fine roots; thin discontinuous coatings on ped faces; 3-10 percent visible glauconite, some fine mica; root channels filled with Ap material; boundary smooth gradual; 9 to 13 inches thick; moderately rapid permeability.
B32	35 to 48 inches. Variegated dark brown (7.5YR 4/4) with blotches of yellowish brown (10YR 5/6) loamy sand; single grain structure to weakly aggregated; very friable; fine roots; 3-10 percent visible glauconite, some fine mica; root channels filled with Ap material; boundary smooth gradual; 10 to 16 inches thick; rapid permeability.
C	48 to 60 inches plus. Brownish yellow (10YR 6/6) loamy sand (medium sand); single grain structure; loose; some fine roots; 3-10 percent visible glauconite with some fine mica; permeability very rapid.

FREEHOLD LOAMY SAND (X2,01,C,a)

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        WEIGHT  PERCENT  AND  VOLUME  PERCENT  OF  WATER  RETAINED

IDENTIFICATION           T E N S I O N S  (BARS)
                                                                       BD         TP
92   1    2    1      .1        .3        .6        3.        15.       G/CC       PCT

     DEPTH                                                                 3
        0            13.28     10.82      8.46      8.40     4.72      1.54     41.89
                     20.45     16.66     13.02     12.93     7.26
                     FRAGMENT                        SIEVED  5.47ROCK  PERCENT    .42
                                                                           3
       14            20.17     18.18     16.29     15.51     9.91      1.42     46.42
                     28.64     25.81     23.13     22.02    14.07
                     FRAGMENT                        SIEVED  9.17ROCK  PERCENT   1.42
                                                                           3
       24            22.44     19.78     19.36     16.08    11.17      1.26     52.45
                     28.27     24.92     24.39     20.26    14.07
                     FRAGMENT                        SIEVED      ROCK  PERCENT
                                                                           3
       35            15.41     12.93     11.01     10.91     7.03      1.24     53.21
                     19.10     16.03     13.65     13.52     8.71
                     FRAGMENT                        SIEVED  5.85ROCK  PERCENT   1.67

        1=FIST
        2=CORE
        3=LOOSE
```

MARLBORO, NEW JERSEY

FREEHOLD LOAMY SAND (X2,01,C,b)

Location: Marlboro State Hospital Experimental Runoff Plots
Vegetation and land use: Winter rye
Topography: Smooth, 3 percent slope
Drainage: Well drained
Parent Material: Glauconitic sands, Coastal Plain
Described and sampled by: K. P. Wilson, C. F. Jablonski, G. P. Lawless

Horizon	Description
Ap	0 to 11 inches. Dark brown (10YR 3/3-4/3) loamy sand; very weak fine granular structure; loose; abundant fine roots; abrupt smooth boundary; 6-14 inches thick; rapid permeability.
A2	11 to 14 inches. Yellowish brown (10YR 5/6-4/6) heavy loamy sand; breaks out in clods, breaks down to single grain structure; very friable; abundant fine roots; slight amount of very fine platy and slightly firmer material at base of Ap horizon and in top of A2 horizon; 2-5 percent glauconite, a little mica; gradual smooth boundary; 0 to 4 inches thick; rapid permeability.
B2	14 to 28 inches. Dark brown (7.5YR 4/4) to strong brown (7.5YR 5/6) sandy clay loam; weak medium subangular blocky; firm in place, friable when removed; some fine roots; continuous thin coatings on all ped faces, interiors, pores partially filled; 2-5 percent glauconite; smooth gradual boundary; 11 to 16 inches thick; moderate permeability.
B3	28 to 44 inches. Variegated yellowish brown (10YR 5/6) to brownish yellow (10YR 6/6) with spots of strong brown (7.5YR 5/6) light sandy loam; massive, single grain; friable; some fine roots; 10YR colors on clean sand grains; 7.5YR colors on coated grains with some bridging across grains; gradual smooth boundary; 10-15 inches thick; moderately rapid permeability.
C	44 to 60 inches plus. Light yellowish brown to brownish yellow (10YR 6/4-6/6) with scattered white spots, loamy sand to medium sand; single grain structure; loose; extremely few fine roots; 3-10 percent glauconite and some fine mica; very rapid permeability.

MARLBORO, NEW JERSEY

FREEHOLD LOAMY SAND (X2,01,C,b)

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       WEIGHT  PERCENT  AND  VOLUME  PERCENT  OF  WATER  RETAINED

IDENTIFICATION        TENSIONS (BARS)
                                                                  BD       TP
92   1   2   2     .1        .3        .6        3.        15.      G/CC     PCT

     DEPTH                                                           3
      0            12.10      9.99      7.92      7.76      4.57     1.47    44.53
                   17.78     14.68     11.64     11.40      6.71
                   FRAGMENT                        SIEVED   6.96ROCK PERCENT   .41
                                                                     3
     14            23.18     21.58     18.51     17.72     12.54     1.16    56.23
                   26.88     25.03     21.47     20.55     14.54
                   FRAGMENT                        SIEVED  13.18ROCK PERCENT  2.33
                                                                     3
     28            21.39     17.87     15.51     14.48      9.14     1.19    55.09
                   25.45     21.26     18.45     17.23     10.87
                   FRAGMENT                        SIEVED   9.71ROCK PERCENT   .52

      1=FIST
      2=CORE
      3=LOOSE
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NELLIS GRAVELLY LOAM (X3,01,I,a)

Location: Onondaga County, Marcellus Experiment Station
Vegetation and land use: Idle; grasses and weeds
Topography: Strongly sloping
Drainage: Well drained
Parent Material: Medium textured calcareous glacial till
Described and sampled by: D. F. Flora and G. P. Lawless

Horizon	Description
Ap	0 to 8 inches. Very dark grayish brown (10YR 3/2) moist; rubbed, dark grayish brown (10YR 4/2) gravelly loam; moderate medium and fine granular structure; slightly hard when dry; neutral; abundant fine roots; abrupt smooth boundary.
B2	8 to 18 inches. Dark brown (7.5YR 3/2) moist; dark brown to brown (7.5YR 4/4) dry, gravelly loam (est. 10 percent cobbles by volume); weak fine and very fine subangular blocky structure in weak to moderate medium and coarse plates; many fine pores (little or no evidence of clay flow); slightly hard when dry; neutral; common fine roots; clear wavy boundary. 6 to 10 inches thick in pit exposure.
B3	18 to 24 inches. Dark brown (10YR 4/3),moist, gravelly loam (est. 10 percent cobbles by volume); moderate medium and thick platy structure; many fine pores (little or no evidence of clay flow); slightly firm in place, friable to crush; neutral in upper part becoming calcareous with depth; few fine roots; gradual wavy boundary. 5 to 9 inches thick in pit exposure.
C	24 to 40 inches plus. Dark grayish brown (10YR 4/2) moist gravelly loam with few spots of strong brown (7.5YR 5/6) limestone ghosts (est. 10 percent cobbles by volume and an occasional stone-sized fragment); moderate medium and thick platy structure; many fine pores; firm in place, slightly firm to crush; calcareous; very few fine roots in upper part.

Remarks: Mapped Honeoye gravelly silt loam, 15 to 19 percent slopes, eroded.
Coarse fragments mostly limestone with some sandstone and dark shale.

NELLIS GRAVELLY LOAM (X3,01,I,a)

WEIGHT PERCENT AND VOLUME PERCENT OF WATER RETAINED

IDENTIFICATION	TENSIONS (BARS)							
93 1 4 1	.1	.3	.6	3.	15.	BD G/CC	TP PCT	K IN/HR
DEPTH						1		
0	25.44	22.16	19.23	17.11	10.90	1.41	46.79	.75
	35.87	31.24	27.11	24.12	15.36	1.55	41.51	.63
	FRAGMENT	22.63		SIEVED	14.56ROCK	PERCENT	16.13	
						1		
8	20.96	18.33	15.24	14.33	9.50	1.36	48.68	1.65
	28.50	24.92	20.72	19.48	12.92	1.49	43.77	2.30
	FRAGMENT	21.01		SIEVED	12.06ROCK	PERCENT	15.04	
						1		
18	15.16	13.84	11.50	9.33	5.19	1.62	38.87	12.44
	24.55	22.42	18.63	15.11	8.40	1.68	36.60	1.89
	FRAGMENT	14.16		SIEVED	8.92ROCK	PERCENT	38.30	
						1		
24	12.61	11.76	10.65	8.29	4.57	1.65	37.74	.22
	20.80	19.40	17.57	13.67	7.54	1.70	35.85	.12
	FRAGMENT	12.06		SIEVED	7.14ROCK	PERCENT	40.01	

1=FIST
2=CORE
3=LOOSE

HONEOYE SILT LOAM (X3,01,C,b)

Location: Onondaga County, Marcellus Experiment Station
Vegetation and land use: Alfalfa-grass mixture
Topography: Moderately sloping
Drainage: Well to moderately drained
Parent Material: Thin silty smear over medium to moderately coarse textured calcareous glacial till.
Described and sampled by: D. F. Flora and G. P. Lawless

Horizon	Description
Ap	0 to 8 inches. Very dark grayish brown (10YR 3/2) moist; rubbed, dark brown (10Y 3/3); grayish brown (10YR 5/2) dry silt loam (estimate 10 percent gravels by volume); moderate medium and fine granular structure; hard when dry; neutral; abundant fine roots; abrupt smooth boundary.
B2	8 to 19 inches. Dark brown (10YR 3/3) moist; rubbed, dark brown to brown (10YR 4/3) sticky silt loam, (estimate 10 percent gravels by volume); dry colors of dark brown (10YR 3/3) with washed streaks of yellowish brown (10YR 5/4) indicate interfingering of an A2 that is incorporated in the Ap; weak fine subangular blocky structure; few patchy clay skins on ped surfaces and in some pores; hard when dry; neutral; common fine roots in upper part becoming few with depth; clear wavy boundary. 11 to 16 inches thick in pit exposure.
IIC	19 to 60 inches plus. Dark grayish brown (10YR 4/2) and dark yellowish brown (10YR 4/4) moist sticky gravelly loam or gravelly very fine sandy loam (estimate 10 percent cobbles by volume and an occasional stone); weak thick platy structure; slightly firm in place and friable to crush; calcareous; few fine roots in upper part.

Remarks: Limestone is the dominant coarse fragment present with some sandstone and dark shale.

Mapped Honeoye gravelly silt loam, 8 to 15 percent slopes.

HONEOYE SILT LOAM (X3,01,C,b)

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      WEIGHT  PERCENT  AND  VOLUME  PERCENT  OF  WATER  RETAINED

IDENTIFICATION         T E N S I O N S  (BARS)
                                                            BD        TP       K
93  1  2  2     .1       .3       .6       3.       15.      G/CC      PCT     IN/HR

     DEPTH                                                     1
      0         25.84    22.81    18.89    17.41    12.56    1.37     48.30    3.13
                35.40    31.25    25.88    23.85    17.21    1.50     43.40     .90
                FRAGMENT 23.75             SIEVED 15.17ROCK PERCENT 19.38
                                                               1
      8         23.48    20.08    16.20    16.06    12.96    1.39     47.55    1.14
                32.64    27.91    22.52    22.32    18.01    1.52     42.64     .66
                FRAGMENT 23.47             SIEVED 18.22ROCK PERCENT 19.63
                                                               1
     19         19.44    17.43    14.10    13.38     9.03    1.57     40.75     .46
                30.52    27.37    22.14    21.01    14.18    1.63     38.49     .15
                FRAGMENT 17.84             SIEVED 13.04ROCK PERCENT 41.78


      1=FIST
      2=CORE
      3=LOOSE
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